

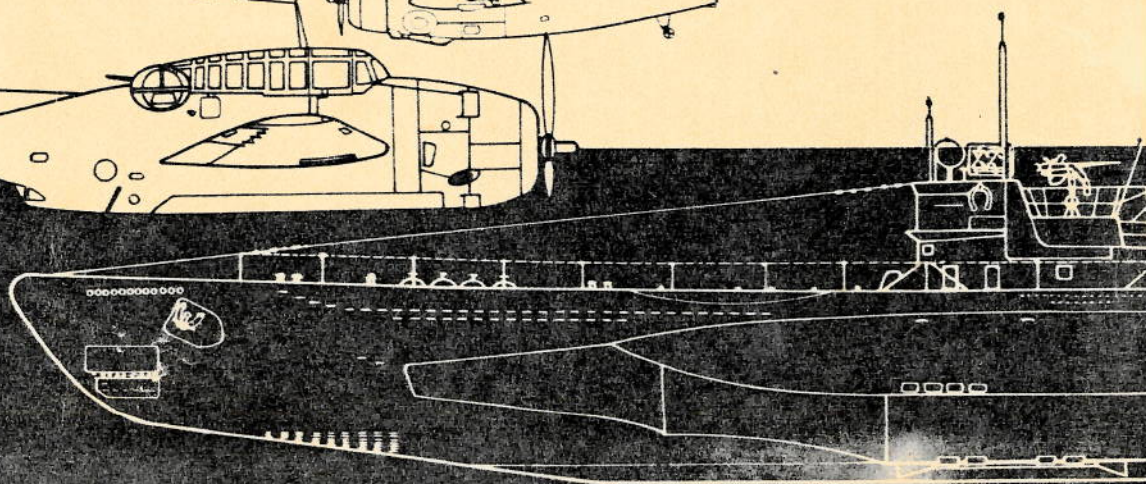
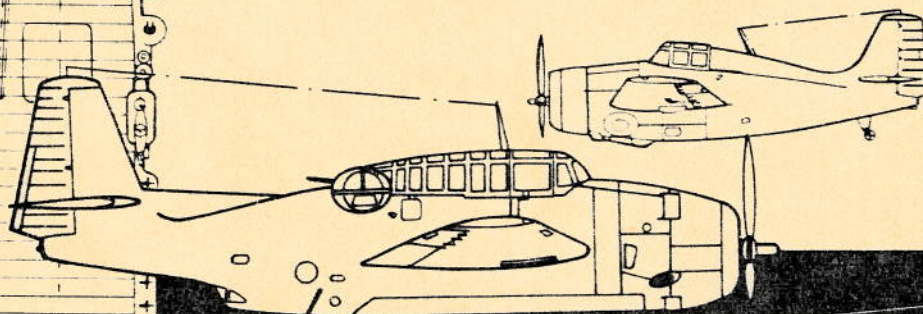
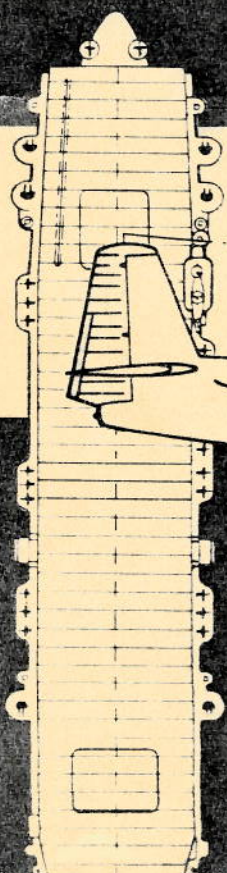
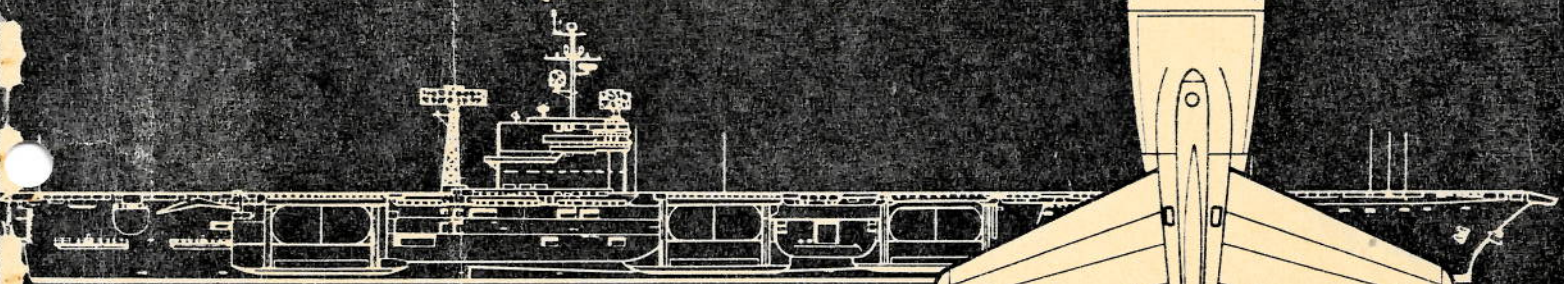
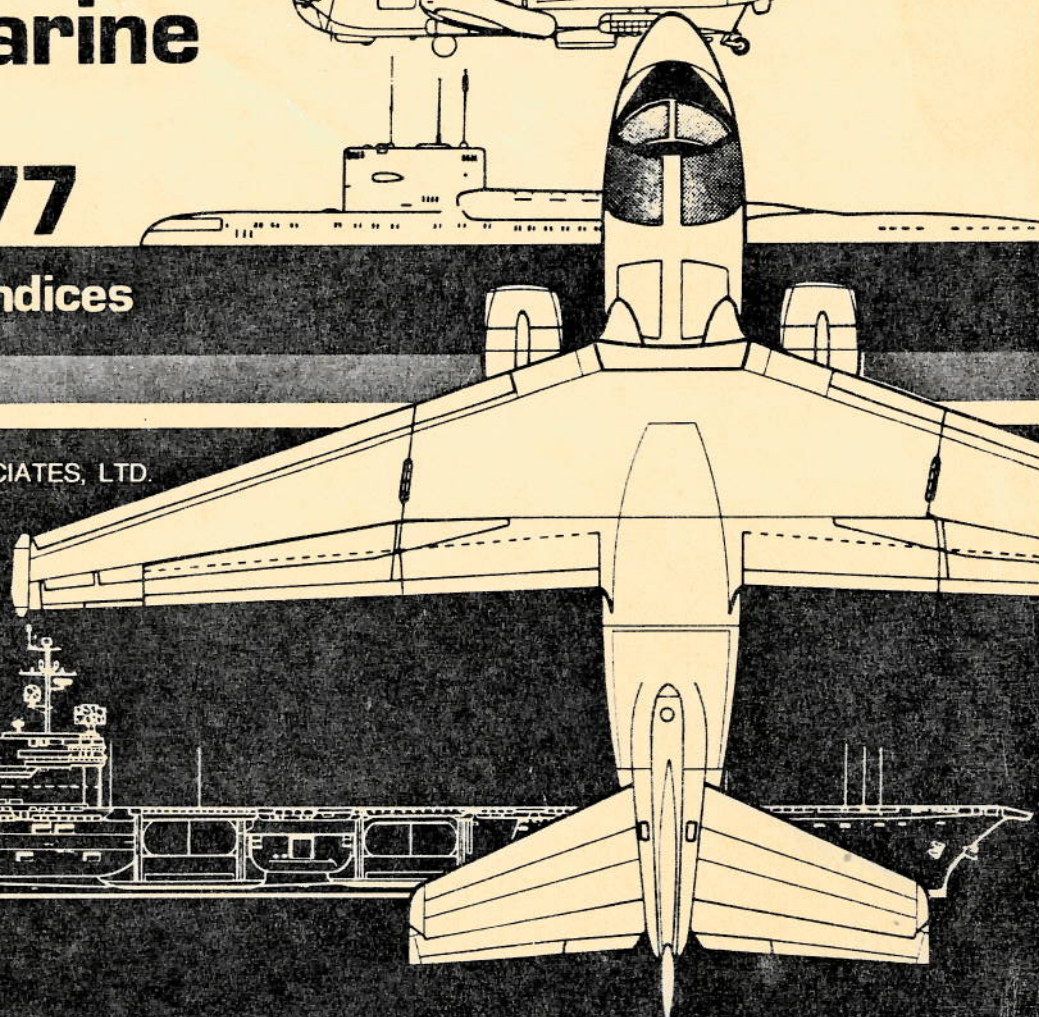
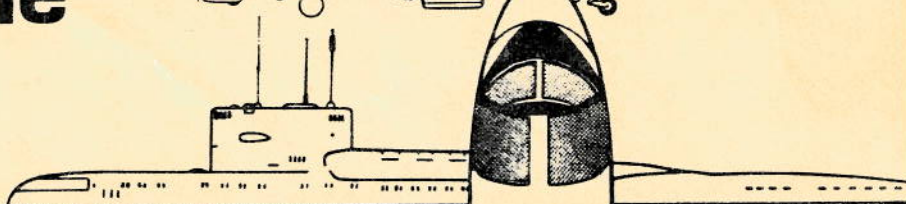
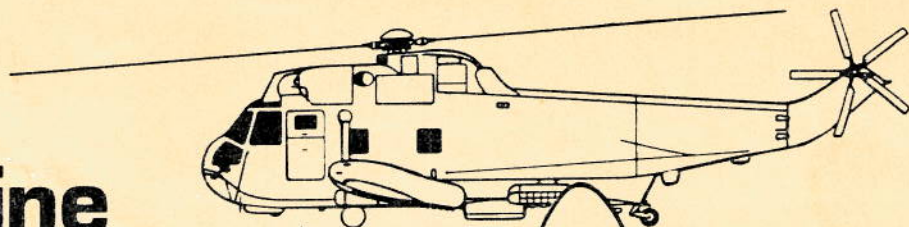
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# Sea-Based Airborne Antisubmarine Warfare 1940-1977

Volume III Appendices

RFC  
CIII

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# Sea-Based Airborne Antisubmarine Warfare 1940-1977

## Appendices

### A. Defense and Foreign Policy 1939-1977

Dr. J. Kenneth McDonald

### B. Congress and Antisubmarine Warfare

Dr. Charles S. Nicewarner

### C. The Atlantic U-boat War

Kenneth L. Knight, Jr.

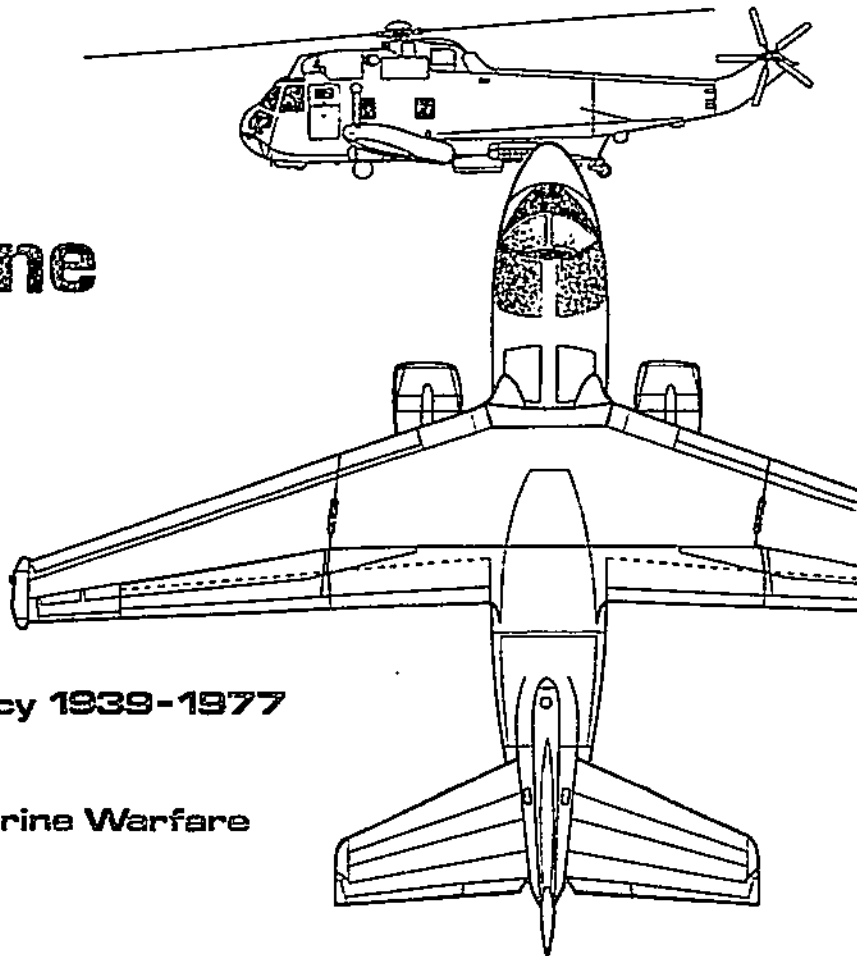
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## FOREWORD

This is the third volume prepared for Op-095 under Contract N00014-77-C-0338. It contains the three appendices covering post World War II world history (Appendix A), a selective examination of congressional relations with the Navy, (Appendix B), and a history of the Battle of the Atlantic, the latter two largely from the standpoint of Sea-based Airborne Antisubmarine Warfare. Although based in large measure on official informational sources, all three Appendices are Unclassified.

Research in each case has been conducted by the authors using reports, hearings, and internal correspondence available in the Washington area. Dr. McDonald, the author of Appendix A, is a professor of international affairs at George Washington University. His survey is based upon extensive research in the principal documentary sources and monographic studies of this period. Dr. Nicewarner, in preparing Appendix B, has relied primarily on the congressional hearings augmented by a limited number of classified briefings to the various appropriations committees. In addition, the four volumes of Congress and the Nation, published by Congressional Quarterly, Inc., have provided specific congressional historical information. Mr. Knight, in preparing Appendix C, suffered in part from a plethora of good source material on World War II, the most outstanding of which were the excellent official histories prepared by the British for all phases of the Battle of the Atlantic. Unfortunately, these have yet to be declassified in their original form and are therefore not readily available and are generally unknown within the Navy ASW community. This series of documents was augmented by the extensive official U.S. Naval records available in the Operational Archives, Naval History Division (Op-09BH) and the Office of Naval Aviation History. Many of the sources credited in Volume I, but not specifically mentioned here, were employed. One additional source of note

is the Office of Naval History, Intelligence Section which supplied key information on the U.S. ULTRA intelligence operations during World War II.

Appendix A was prepared with the objective of providing an internationally-oriented background for understanding the postwar operations and objectives of the Navy. It is basically a history primer from a naval point of view. Appendix B was assembled as a summary of the Navy's efforts to explain its ASW programs to the public and Congress, the latter having to approve each annual budget. In general, this shows a Congress increasingly concerned with ASW as the Soviet threat develops nuclear power and a missile launch capability. This same concern fades, however, with the advent of the expensive, all-encompassing Vietnam War. The congressional hearings and reports provide a voluminous record of this Navy-congressional interchange which impressively matches many of the trends in ASW outlined in Volumes I and II.

World War II, the last major naval conflict where both sides had extensive resources and technology at their disposal, has been included not only because it was the genesis of Sea-based Airborne ASW but because it is the last active struggle for control of the seas between submarines and aircraft. One lesson was that Hunter-Killer groups make little sense without special intelligence from whatever source. Another might be that long-range air can be effective in interdicting and surveilling sea lines of communications. Today, of course, this can include satellites as well as conventional long-range reconnaissance aircraft.

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## APPENDIX A

## Defense and Foreign Policy 1939-1977

### I. European War and American Neutrality: 1939-1941

When the Second World War broke out in September 1939, most Americans believed that the nation's role should be only that of an interested spectator. Although Americans generally disapproved of Hitler's Germany, and wanted the Allies--Britain, France, and Poland--to win, they clearly did not want the United States to become involved in this new European war. Nevertheless, the war at sea immediately brought the danger of involvement home to the American government and people. Germany began unrestricted submarine warfare on the first day of the war, when a U-boat sank the British passenger ship *Athenia* without warning and with large loss of life. Five days later, in retaliation for German U-boat attacks, the Allies announced a long-range blockade of Germany. Berlin responded with a counterblockade of the Allied coasts.

*U-boat Warfare  
and the  
British  
Blockade,  
September 1939*

As in the First World War, America's desire to remain neutral was rapidly subjected to pressure from both belligerent sides. While the United States was neutral in the First World War, Wall Street loans had helped finance an enormous expansion of trade with the Allies, and German U-boat attacks on this trade had finally brought America into the war on the side of the Allies in 1917. Inspired by the memory of this 1914-1917 experience, the United States Congress passed Neutrality Acts in 1935, 1936, and 1937, which seemed designed principally to keep America out of the First World War. When the new European war began in 1939, the 1937 Neutrality Act prohibited all belligerents from buying armaments in the United States. By November 1939, however, President Roosevelt had called a special

*The "Lesson"  
of World War I*

*The 1939  
Neutrality Act*

session of Congress to revise the 1937 Act. The new 1939 Neutrality Act lifted the arms embargo, but at the same time forbade American ships from entering "danger zones" around the British Isles, the Atlantic coast of France, and in the Baltic Sea. Belligerents could now buy American supplies, including munitions, but the new Act required that this trade be on a "cash and carry" basis. In spite of these restrictions, the new 1939 Act heavily favored Great Britain and France, who alone had the money, merchant shipping and naval forces to buy and safely transport American supplies and arms to their own countries.

In the winter of 1939-40 American industry, still struggling out of the 1930s depression, began to mobilize for war production to fill the ever-increasing orders of the British and French purchasing missions in America. When the land war stagnated after the rapid fall of Poland in September 1939, people began to speak of the "Phony War." At sea, however, the war was real enough, as German submarines and surface raiders attempted to stop the seaborne flow of supplies to Britain and France.

*The Fall of  
France, 22 June  
1940*

In April of 1940 Hitler suddenly invaded Denmark and Norway, and a month later he began his blitzkrieg against Holland, Belgium, and France. In the first days of June, Great Britain's armies were driven off the European continent at Dunkirk, and by 18 June the French government had sued for an armistice. The terrifying speed with which the German armies conquered these countries, and the sudden collapse of the mighty French army, shook the American people out of their complacent confidence that this war was only a European affair. Suddenly, many Americans recognized that if Great Britain fell, the United States might face an aggressive Hitler who had all the resources of Europe--possibly including the British fleet--at his disposal. The impact of the fall of France upon American defense policy was dramatic. By spring 1940 Congress had grudgingly voted just under \$2 billion for the armed services; in a few weeks during the May-June German blitzkrieg Congress rapidly approved another \$2.5 billion. After the French surrender, total 1940 defense appropriations rose to over \$10 billion, including \$4 billion to begin construction of a "two-ocean navy." In September 1940 Congress also enacted a conscription bill, which for the first time in American history authorized a peacetime draft.

*Increased U.S.  
Defense  
Spending*

Even though the United States was in the midst of a presidential election campaign, Franklin Roosevelt decided

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*Defense and Foreign Policy*

that America must give up its technically even-handed neutrality in order to support Great Britain against Germany by all means short of war. Britain's survival was threatened by both Hitler's submarine blockade and his threat to invade England. To control the seas, the Royal Navy desperately needed escort and patrol ships. In a highly un-neutral action of 3 September 1940, President Roosevelt by executive order transferred 50 over-age First World War vintage destroyers to the Royal Navy, while Great Britain gave the United States free base rights in Newfoundland, Bermuda, the West Indies, and British Guiana. The United States was unequivocally committed on the side of Great Britain.

*Destroyer-Bases  
Deal, September  
1940*

In the winter of 1940-41, Prime Minister Winston Churchill said to America, "Give us the tools, and we will finish the job." In response, President Roosevelt promised that the United States would become the "arsenal of democracy." In order to make the enormous financial and industrial resources of America available to Great Britain, President Roosevelt in December of 1940 proposed the Lend-Lease program to provide Britain with what she needed without payment. After bitter debate, on 11 March 1941 Congress passed this act to "lend defense articles" to those governments "whose defense the President deems vital to the defense of the United States." During the war America provided some \$50 billion in lend-lease aid to our allies, over 99 percent of which was carried to the Allies by sea. If the September 1940 destroyer-bases agreement was America's abandonment of neutrality, the Lend Lease Act of March 1941 served as an unofficial American declaration of war against Hitler and his allies.

*Lend-Lease Act  
Passed, March  
1941*

To make this American assistance effective, the ocean lifelines from American to British--and later, Russian--ports had to be kept open in the face of the mounting German submarine offensive. In the spring of 1941 the United States undertook a protective occupation of Danish Greenland, and in July American Marines garrisoned newly independent Iceland. American ships began helping the Royal Navy in antisubmarine warfare, and in late May a German U-boat sank an American merchantman, the *Robin Moor*, in the South Atlantic. In September 1941, after a German submarine attempted to torpedo the U.S. destroyer *Greer*, President Roosevelt announced that henceforth the United States Navy would not merely repel German attacks, but would strike first at German U-boats and ships in American defensive areas. The President ordered the U.S. Navy to

*The U.S. Navy's  
Undeclared  
Atlantic Naval  
War, Autumn  
1941*

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escort convoys--of American, other neutral, and even British ships--in the North Atlantic as far as Iceland, where the Royal Navy took over for the last leg to Britain. After further German attacks in October, which damaged the destroyer Kearny and sank the *Reuben James* off Iceland, Congress partially repealed the 1939 Neutrality Act in November. American merchant ships, armed or unarmed, could now legally go anywhere and carry any kind of cargo, including munitions. Thus, as the United States drew closer to declared war, the American Navy's attention in the Atlantic was focused on the struggle against the German submarine force which was actively attacking the sea lanes of communications to Europe.

## II. The United States in the Second World War: 1941-1945

U.S. Fleet  
Moved to  
Hawaii, 1940

Pearl Harbor,  
7 December 1941

In the light of growing American support for Great Britain after the fall of France, U.S. defense planners sought to reduce American commitments in the Pacific. In June of 1940, however, President Roosevelt decided to keep the fleet in the Pacific at Hawaii, where it had moved temporarily in April for the annual Fleet Problem. The President was convinced that this move, although strategically dubious, would deter Japan from attempting to capitalize in Asia upon the German successes in Europe against Britain and France. The Pacific Fleet was still at Pearl Harbor in December 1941 when the catastrophic Japanese surprise attack destroyed five battleships and damaged two more. The loss of these battleships accelerated the United States Navy's movement toward the aircraft carrier as the Navy's main strike weapon. The great carrier battles in mid-1942, at Coral Sea and Midway, demonstrated the dominant role of naval airpower over all other forms of naval engagement in this new, wide-ranging Pacific war.

Roosevelt and  
Churchill Agree  
to Defeat  
Germany First

In secret staff conversations at the beginning of 1941, British and American planners had agreed that if the two nations became allies in a war against both Germany and Japan, they would give first priority to the defeat of Germany. Since the U.S. Navy before 1939 had planned only for a Pacific war, the advent of war in December 1941 with its series of humiliating Japanese triumphs left many naval officers eager to concentrate first on the defeat of Japan. The Anglo-American prewar agreement held firm, however, and President Roosevelt and Prime Minister Churchill reaffirmed this "Europe First" strategy at their first wartime meeting, at Washington in late December 1941.

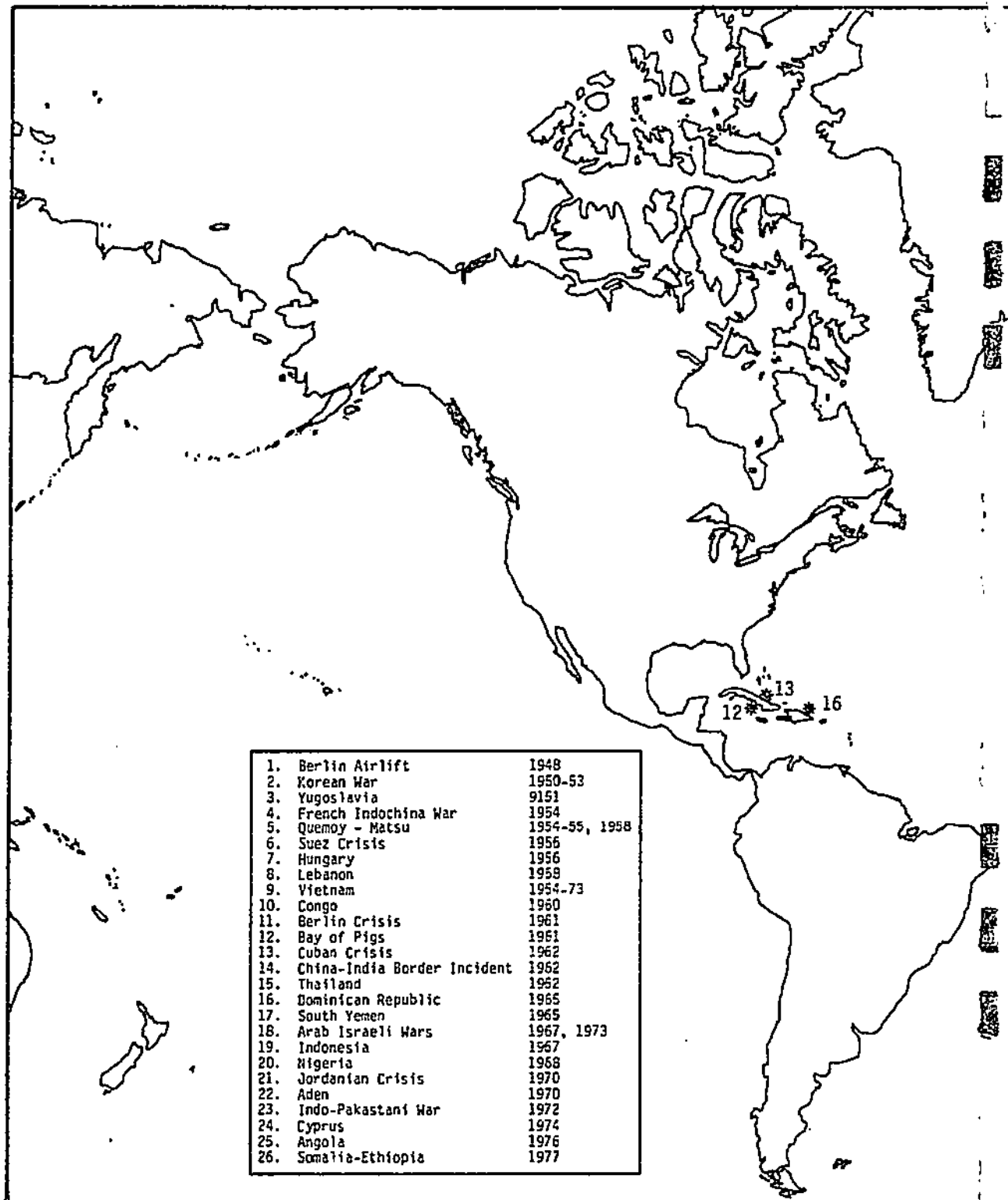
*Defense and Foreign Policy*

Yet as the war progressed it became clear that the United States was really fighting two separate wars, with the war in Europe having little effect on the commitment of American forces or the movement to the offensive in the Pacific. Until late 1943 there were more Americans serving in the Pacific than in the European theater, and until the launching of the Normandy invasion six months later, more British than American forces were committed in combat against the Germans. Since Great Britain and Russia were already engaged against German armies when the United States entered the war, the American naval effort for the European theater centered around the two tasks of keeping the supply lines open to these allies, and of conducting the massive movement of American ground and air forces across the Atlantic. In the Atlantic, antisubmarine warfare had top priority. The U.S. Navy and the Royal Navy together developed new tactics and techniques, as well as new weapons and intelligence systems, to deal with the German U-boat threat. These American forces, combined with those of the British Empire, made possible the successful invasions of North Africa, Sicily, and Italy which finally led to D-Day, the great cross-channel invasion into northern France. This Normandy invasion of June 1944, and the campaigns following it, brought about the total defeat of Germany by the following May. In the European war the contribution of the American and British naval forces was to fight and win the Battle of the Atlantic against the German submarine, and to marshal and launch the powerful Allied invasion forces which finally conquered Germany.

*ASW Top  
Priority in  
the Atlantic*

The war in the Pacific was different. Preeminently it was a naval war, and in general outline it was fought according to the U.S. Navy's prewar concept of Plan ORANGE, the code name of the successive war plans for a war between Japan and the United States. After Pearl Harbor, Japan by May of 1942 had taken all of Southeast Asia, the Dutch East Indies, Borneo, the Philippines, most of the Solomons, and the northern portion of New Guinea. By throwing back the Japanese navy in the Coral Sea and Midway battles, the U.S. Navy set the stage for an advance northward and westward across the Pacific Ocean. In this strategy of a two-pronged attack, General Douglas MacArthur's combined Army-Navy forces in the southwest Pacific made the advance northward toward the Philippine Islands, while the westward advance across the central Pacific was essentially a U.S. Navy-Marine Corps operation under Admiral Nimitz's Central Pacific command.

*The Attack  
Carrier and  
Amphibious War  
in the Pacific*

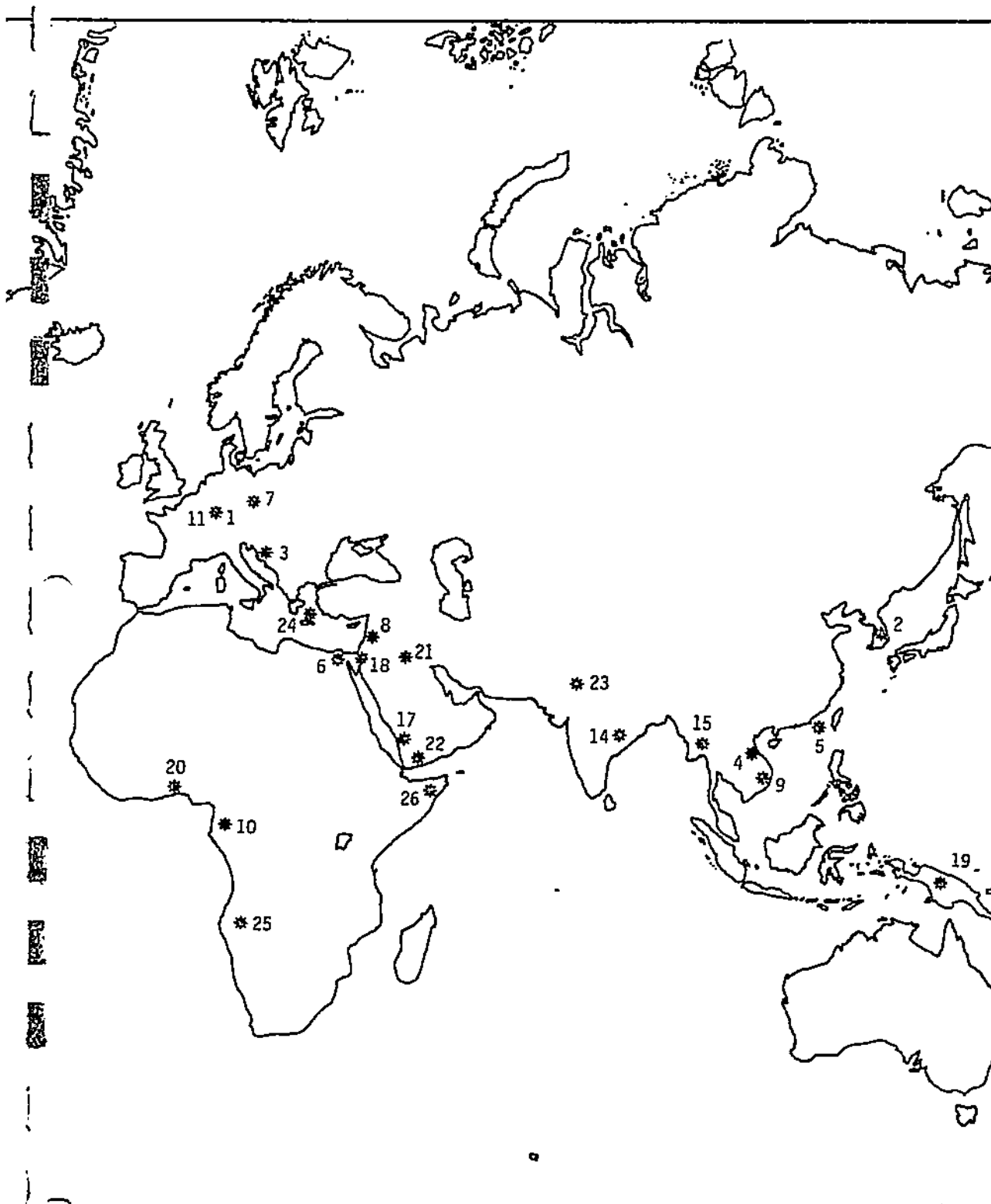


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Defense and Foreign Policy



Postwar World Events.

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*Summary of  
the Pacific  
Naval War*

By September of 1944 these two axes of attack had converged toward the southeast flank of the Philippines. At that time the greatest air-sea battle in history occurred at Leyte Gulf, where the U.S. Navy dealt a mortal blow to Japanese seapower. In addition, an enormously successful blockade had been set up around Japan. In this battle against Japan's war-making capacity, American submarines took a terrible toll of Japanese warships and merchantmen, while the Army Air Force's B-29 bombing offensive rapidly mounted in intensity. On 1 April 1945 American troops landed in Okinawa, so that the war had moved into Japanese home territory even before the war had ended in Europe on VE Day, 8 May 1945.

*Nuclear Weapons  
First Used*

After the Allied victory over Germany, the redeployment of forces from Europe and the Atlantic began immediately, and plans were on foot for a massive invasion of Japan in November 1945. By July 1945 American B-29s reached a tempo of over 1,200 sorties a week against Japanese targets. On 6 August 1945 the world's first atomic bomb was dropped, obliterating some 60 percent of the city of Hiroshima. On 9 August a second atomic bomb was dropped, this time on Nagasaki. On 14 August--almost four years after Pearl Harbor, but less than four months after VE Day--the Japanese Empire accepted unconditional surrender.

*Contrast Be-  
tween Atlantic  
and Pacific  
Naval Wars*

Although in 1945 nobody could predict the future course of nuclear warfare, the experience of the Second World War left a deep mark on the participants and their successors. For American naval officers who had fought in the Atlantic and European waters, the Navy's war had been one of arduous convoy duty, of constant warfare against the U-boat threat, and of the launching of tremendous seaborne invasions on African and European coasts. Those who served in the Pacific, however, came home from a war of great carrier fleet actions, of short, sharp and costly island-hopping amphibious operations, and of a powerful submarine offensive and blockade. These two very different naval wars which were fought in the Atlantic and Pacific have to a considerable extent served--right up to the present--as contrasting models of future naval warfare.

### III. Demobilization and Containment: 1945-1950

On VE Day, 8 May 1945, American armed forces included a navy more powerful than all the other navies of the world

*Defense and Foreign Policy*

combined, and an army of 89 ground divisions and 273 air groups. Behind these combat forces was a vast global support organization. By VJ Day, the world also knew that the United States alone now had a new nuclear weapon of almost incomprehensible destructiveness. In 1945 the wartime mobilization of U.S. industrial, managerial, and manpower resources had created the strongest military and economic power in the history of the world, and a power far stronger than any other possible power or combination of powers.

*U.S. Military  
Strength at  
the End of  
World War II*

After victory, however, the United States demobilized rapidly. On VJ Day the U.S. Navy had 3,400,000 men; by March 1946 it had dropped to less than half this size. The Army was reduced by July 1946 to less than a quarter of its VJ Day strength of 8,200,000 men. By June of 1950 something less than 1,500,000 men and women--compared to the 12,300,000 at the end of the war--were still in the American armed forces. The Army had only ten understrength and poorly trained divisions, while the Marines had but two, both undermanned. The now independent Air Force maintained only forty-eight wings, eighteen of which were in SAC. The Navy, although still very powerful, had been reduced to 671 ships. Moreover, in September 1949 the Soviet Union had exploded its first atomic bomb, thus ending the monopoly on nuclear weapons which most American experts had expected to remain in U.S. hands until well into the 1950's.

*Postwar  
Demobilization*

*First Soviet  
Nuclear  
Explosion,  
September 1949*

As the United States moved to demobilize its forces after 1945, it became increasingly aware of the growing Soviet threat to its security and world-wide position. In response, the United States first rapidly shifted its foreign policy towards the containment of Russia, and then slowly began to work out how this new foreign policy affected defense policy and strategy.

The transformation of American foreign policy came first. Before the end of the war, at Yalta in January of 1945, Churchill, Roosevelt, and Stalin had agreed on the general lines of the postwar political settlement, and the United Nations Charter was signed in April. Before President Roosevelt died in April 1945, however, he and Prime Minister Churchill had growing doubts about Stalin's intentions in Poland. The new President, Harry Truman, almost immediately adopted a tougher and more suspicious attitude toward the Soviet Union. President Truman's wish to limit Russia's postwar role in the Far East probably helps explain his decision to use the atomic bomb against Japan just as the USSR marched into Manchuria.

*Growing Dis-  
trust of the  
Soviet Union*

*USSR Dominates  
Eastern Europe*

In 1945 it became evident in Germany, and in East Europe (especially in Poland), that the Yalta agreements were not working. The Soviet Union tightened its grip on the East European states even as it joined the other victors in Paris to organize peace treaties with Hitler's wartime allies. A clear conflict between western and Russian conceptions of the postwar world emerged in these negotiations. Eventually--in March 1947--this Paris conference produced peace treaties for Italy, Hungary, Rumania, Bulgaria, and Finland. The process provoked such animosity, however, that the wartime allies made no attempt to draft peace treaties for the two major defeated enemy states, Germany and Japan. A Japanese peace treaty was not concluded until 1951, and then only in the face of bitter Soviet opposition. Even today, some thirty-three years after the Allied victory in Europe, there is still no final peace treaty with Germany.

*Soviet-American  
Conflicts in  
the United  
Nations*

By 1946 the Cold War had begun. In the new United Nations Russia and America traded accusations of bad faith and bellicosity, while Russia used her veto to immobilize the world organization. The United States had hoped that the United Nations would provide a collective security organization to continue the wartime cooperation of the Grand Alliance into the postwar world, but its prospects for success faded rapidly. On the other hand, the widespread presumption that the United States would speedily withdraw from Europe at the end of the war also proved wrong. America continued to maintain large occupation forces in Germany and Austria, and naval forces in the Mediterranean.

*The "Iron  
Curtain":  
March 1946*

In March of 1946 Winston Churchill, in a speech at Fulton, Missouri, dramatically announced that an "Iron Curtain" had fallen across Europe. Churchill called for an Anglo-American alliance to preserve the peace of the world. Truman's presence at Fulton was an accurate indication that the American President was prepared to lead a great crusade against Soviet expansion. Later in the same month the President sent the battleship *Missouri*--the U.S. Navy's most powerful surface combatant--to Istanbul in a dramatic show of American support for Turkey against Soviet pressure. Later in 1946 sharp American demands brought Russia to withdraw her troops from Iran, and before the year was over she also withdrew from Manchuria. With the Russian Army in occupation, however, the Eastern European nations, from Bulgaria to Poland, were swiftly converted into satellite states with docile Communist governments.

*Defense and Foreign Policy*

The Soviets refused to cooperate with the three western powers in the occupation of Germany, so that by the end of 1946 the temporary division of Germany was solidifying into a permanent partition.

After the devastating winter of 1946-47, an exhausted and nearly bankrupt Great Britain had to inform the United States government that she could no longer support the Greek government's fight against the Communist guerrilla movement, or Turkey's resistance to intense Soviet diplomatic pressures. Convinced that the United States might lose the entire Eastern Mediterranean by default if it did not move quickly to support Greece and Turkey, President Truman conveyed his sense of grim urgency to Congress in a special address on 12 March 1947. Specifically, the President asked Congress to authorize the sending of military advisers and \$400 million in economic aid to Greece and Turkey. He gave this request a wider purpose, however, when he declared that "it must be the policy of the United States to support the peoples who are resisting attempted subjugation by armed minorities or by outside pressures." This policy, the famous "Truman Doctrine," amounted to an open-ended commitment to oppose Communist expansion whether it was by external aggression or internal subversion. This speech, and George Kennan's important July 1947 *Foreign Affairs* article "The Sources of Soviet Conduct," are the basic statements of what became the U.S. policy of containment. In support of this new policy, the U.S. Navy sent the carrier *Leyte* to Greek waters, and sharply increased ship visits to Greece, soon after Truman's speech.

*Decline of  
Great Britain*

*The Truman  
Doctrine and  
"Containment",  
March 1947*

In the spring of 1947 the State Department and the President had also decided that without large American economic aid the economies of western Europe were in serious danger. The Communist party was strong in France and Italy; Germany was still divided and occupied; and Great Britain was exhausted after six years of total war and two years of grim austerity. None of the western European nations had recovered even to their prewar levels of production and trade. In June 1947 Secretary of State George C. Marshall therefore proposed a massive infusion of American aid to fund a cooperative European economic recovery program. In December President Truman asked Congress to vote \$17 billion for the three-year "Marshall Plan." Alarmed by the brutal demonstration of Soviet power in the Communist takeover of Czechoslovakia in February 1948, the U.S. Congress overwhelmingly passed the Marshall Plan bill the following month.

*The Marshall  
Plan, June 1947*

## Defense and Foreign Policy

The Truman Doctrine and the Marshall Plan clearly redirected the United States to a policy of opposing Soviet expansion. Other steps followed. A crisis erupted in Berlin in 1948 over the Soviet opposition to the currency reform which the three western occupying powers jointly arranged in their zones. For almost a year the U.S. Air Force and Navy, along with the Royal Air Force, countered the resulting blockade and supplied two million West Berliners by an enormous "air lift." The Soviet Berlin Blockade failed in 1949, and it accelerated the formation of a new West German state, which it had intended to block. It also helped move the United States, for the first time in American history, to establish and join a peacetime alliance--the North Atlantic Treaty Organization, NATO. Created in April 1949, NATO united the Atlantic nations in opposing the threat of Soviet expansion. The United States was now committed to the defense of Europe. By 1950 America had the Sixth Fleet in the Mediterranean and strategic air forces in England, as well as occupation forces in Austria and Germany. Before the Korean War, however, the Atlantic Alliance was primarily a mutual pledge to wartime cooperation rather than an effective peacetime international military organization.

*The Berlin  
Blockade,  
1948-1949*

*NATO Formed,  
April 1949*

The great postwar revolution in American foreign policy between 1945 and 1950 had focused almost entirely on the Soviet threat to Europe. By late 1949, however, the long civil war in China had come to a climax when Chiang Kai-shek fled with his remaining forces to Formosa, and Mao Tse Tung established the People's Republic of China on the mainland. This event, coming after the division of Korea into two states, north and south, set the stage for the outbreak of the Korean War in June of 1950. Responding to "the fall of China", the Navy reinforced its Far Eastern forces by deploying an aircraft carrier in the western Pacific for the first time since 1947. In February 1950, soon after *Boxer* (CV 21) joined the Seventh Task Fleet in East Asian waters, this force became the Seventh Fleet.

*Mao Tse Tung's  
Victory in  
China, 1949*

In the postwar period from 1945 to the Korean War, the American services were generally preoccupied first with the demobilization of the huge wartime forces, and then with the reorganization of the defense establishment. As Admiral Chester Nimitz wrote in 1946, in his first annual report as Chief of Naval Operations, "The pattern for this period is clear: Reduction, reorganization, training, and preparation for the future." The services soon threw themselves into a long, bitter struggle over the reorganization

*American  
Defense Re-  
organization,  
1945-1947*

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ASW

*Defense and Foreign Policy*

of the defense establishment, which generally pitted the Army and its Air Force against the Navy and its Marine Corps. At the end of this postwar reduction and reorganization, each service (including the newly organized U.S. Air Force) expected to establish a new mobilization base, to make it possible--if necessary--to fight another world war. For this purpose the Army wanted Universal Military Training, the Air Force wanted seventy wings, and the Navy wanted new flush-deck carriers. Even after the first stages of defense reorganization, when the interservice dispute moved to the allocation of roles and missions, the services were slow to recognize the entirely new strategic problems presented both by the existence of nuclear weapons, and by the new direction of American foreign policy toward containment.

*Mobilization  
Strategy*

As a result, before the Korean War none of the services formulated policies which really came to terms with the need for forces ready to be used flexibly and diplomatically, for anything from a show of force to limited intervention. Naval forces could sometimes be used in this way, but in general American capabilities and planning for anything other than an extended general war were neglected. General Marshall once noted that although as the Secretary of State he was constantly urged to "give the Russians hell," at this time--1947-1948--"my facilities for giving them hell--and I am a soldier and know something about the ability to give hell--was 1-1/3 divisions over the entire United States." At the other end of the spectrum, the Air Force began to develop forces to support a deterrence strategy, but only as an extension of their Second World War strategic bombing doctrine. The Navy, in demanding supercarriers, similarly assumed that nuclear weapons were simply bigger bombs for use in general war. In the bitter B-36 hearings, the Navy contended that American military strategy was based on two erroneous premises: first, that the United States would immediately resort to atomic weapons, should war break out; and, secondly, that the United States would use such weapons against large urban areas. The continued commitment of American occupation troops in Germany and Japan, and the administration's concentration upon the Soviet military threat to Europe, seemed to justify the Navy's continued development along Second World War lines, including its important capability for antisubmarine warfare to control America's worldwide sea lines of communication. Indeed, in his first report as Secretary of Defense in 1948, James V. Forrestal warned that the Soviet Union was building the largest submarine

*Neglect of  
Deterrence and  
Limited War  
Strategies*

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Forrestal's  
1948 Emphasis  
on ASW

force in the history of the world. Forrestal was convinced that the U.S. Navy's ASW capability was of first importance to the nation's security.

National  
Security  
Council's  
Policy Review,  
1950

In the first months of 1950, the National Security Council undertook a far-reaching review of American strategy and defense policy. This was mainly in response to Russia's new atomic bomb and the recent loss of China. The initiative for this State-Defense study group came from the State Department, while the services were still entangled in the B-36 controversy, which strategically focused on the question of how to fight another world war. The result of this policy review was a comprehensive and highly classified study, NSC-68, which was submitted to President Truman in April 1950. Bleakly assuming that the Soviet Union was intent upon world domination, the study predicted that by 1954 Russia would have overcome the American nuclear advantage, and upset the global balance of military power by their greater conventional forces. Forecasting "an indefinite period of tension and danger," NSC-68 called for "a bold and massive program of rebuilding the West's defensive potential to surpass that of the Soviet world." It was estimated that this kind of vast expansion of American and allied capabilities for both limited and all-out war would cost up to 20 percent of the United States' annual GNP, or as much as \$50 billion a year. This was over \$10 billion more than the entire federal budget in 1950. In fact, a ceiling of \$13 billion had already been set on the 1951 fiscal year defense budget. The 1951 reductions followed the austere FY 1950 budget, which had, for example, cut the Navy to seven attack carriers. In June of 1950 President Truman faced the difficult question of how—or whether—he could convince Congress and the public to accept the sharply increased taxes which would be needed to begin the tremendous military build-up the National Security Council advocated.

NSC-68's  
Demand for  
Massive  
Rearmament,  
April 1950

#### IV. The Korean War: 1950-1953

Kim Il Sung resolved President Truman's problem on 25 June 1950 by launching the North Korean army across the 38th parallel to attack the Republic of Korea. The outbreak of a hot war made the great increase in defense spending proposed by NSC-68 entirely attainable. For Harry Truman, the North Korean attack was the 1930s all over again. Remembering the failure of collective security in

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*Defense and Foreign Policy*

the prewar crises over Manchuria, the Rhineland, Austria, and Czechoslovakia, Truman was determined not to appease aggression, but to take resolute action to stop Communist expansion before it led to World War III. He authorized General MacArthur in Japan to send air and naval help to South Korea, and instructed the U.S. Navy to patrol the Formosa Straits, to prevent a Communist Chinese attack against the Nationalists. Truman then took the American case against North Korea to the United Nations. Because Russia was boycotting the Security Council, the U.N. was able to condemn North Korea as the aggressor, and to call on all members to give South Korea the help necessary "to repel the armed attack and to restore international peace and security in the area." By the end of June the President had authorized full American intervention in support of the U.N. collective security action to preserve South Korean independence.

*President  
Truman and the  
United Nations'  
Response to  
North Korean  
Aggression,  
June 1950*

Once the Korean War broke out most Americans were convinced of the threat of Soviet expansion. There was a widespread presumption, especially within the Administration, that the Communist attack on South Korea was but a feint, intended to divert American attention to the Far East, while the real danger was a Russian attack on Western Europe. Indeed, one of the first effects of the war on American foreign policy was a successful effort to galvanize NATO into action. At President Truman's request, in early 1951 Dwight Eisenhower left the presidency of Columbia University to organize NATO as Supreme Commander of Allied Powers, Europe. An alliance staff was organized and SHAPE headquarters were established in Paris. The NATO allies also undertook extensive rearmament programs. In November 1950 the United States had created the Seventh Army in Germany, and during 1951 four American divisions were moved to Europe. In 1950 the U.S. government also decided that for the defense of Europe a German military contribution was required. After four years, in September of 1954, France and the other Atlantic allies finally agreed to the formation of German armed forces, which would be committed entirely to NATO. During the years immediately following the outbreak of the Korean War the United States rapidly expanded its defense commitments all over the world. In 1951, for example, the United States signed a bilateral mutual defense treaty with the Philippines; concluded the ANZUS pact with Australia and New Zealand; and entered into special defense arrangements with Iceland and Denmark.

*The Soviet  
Threat to  
West Europe*

*NATO Mobiliza-  
tion and the  
German Rearma-  
ment Question*

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*Rapid Increase  
in American  
Defense Spend-  
ing, 1950-1953*

The outbreak of the Korean War both made substantial tax increases possible and brought about a rapid expansion of the American economy. This made money available for rearmament on the scale envisioned by NSC-68. Federal domestic spending remained relatively stable while defense spending rose rapidly. In 1950 defense took 5.2 percent of the American GNP, but by 1953 it consumed 13.5 percent of a considerably larger GNP. From the \$13 billion ceiling originally set for the FY 1951 defense budget, actual defense spending rose to \$22.3 billion in FY 1951, \$44 billion in FY 1952, and \$50.4 billion in FY 1953.

The war itself obviously had immediate priority for this increased funding. After the stalemate of the war in 1951, however, military planning tended to concentrate on preparing a strong mobilization base for general war, and on the strategy of deterrence. President Truman and his Joint Chiefs of Staff decided that it was important to prepare the armed forces for action outside Korea, if this should become necessary. During the war the Navy's attack carrier force level, for example, rose from seven to eighteen, although only eleven saw action in Korean waters. Forces and capabilities not actually used in the war got more money and attention in some cases than the forces committed in the Far East. The Air Force's deterrence force, the Strategic Air Command, fared especially well. On the other hand, the Navy's antisubmarine warfare forces, which presumably would be crucial in a general war, received only modest support during this period.

The Korean War became increasingly unpopular as it dragged on into its third year during the presidential election campaign of 1952. Yet without its impetus, the tremendous American rearmament of this period almost certainly would never have happened.

## V. The Eisenhower Years: 1953-1960

*Eisenhower  
Goes to Korea,  
December 1950*

Having won the election with over 55 percent of the popular vote, Dwight D. Eisenhower came to the presidency in 1952 with two closely related goals: to end the Korean War and to balance the federal budget. Within a month of his election he fulfilled his campaign promise to go to Korea. What he saw there convinced him that it would cost too many American lives to undertake a great ground offensive against the more than one million men in the Chinese and North Korean forces. On his journey back to the United

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States, Eisenhower discussed his strategic options with his new Secretary of State, John Foster Dulles, and with Admiral Arthur Radford, who had been Commander in Chief, Pacific since 1949. Admiral Radford strongly supported Dulles's contention that the United States should principally rely upon nuclear deterrence to block further Communist aggression. In Admiral Radford's view, the Korean War demonstrated that the United States could not fight a ground war against Asian hordes. He therefore suggested that the United States should depend upon local national forces to meet initial threats, while the United States maintained a powerful strategic reserve in the Western hemisphere, based mainly on a nuclear strike capability. Anxious to balance domestic and defense priorities for a "long haul" national security policy, Eisenhower accepted the Dulles-Radford strategy. This concept of "massive retaliation" became the strategic watchword for the Eisenhower administration. In early 1953 the President hinted strongly to the Communist Chinese government (secretly through India) that the United States might resort to nuclear warfare if China would not resume negotiations for a truce in Korea. Although Stalin's death in March 1953 may have had as much influence as Eisenhower's threats on the eventual Communist Chinese decision to conclude a truce, the cease fire began in July 1953. Korea was left divided at the armistice line, slightly north of the thirty-eighth parallel, a division that remains to this day.

*A New Strategy:  
"Massive  
Retaliation"*

*Korean  
Armistice,  
July 1953*

With the end of the war, President Eisenhower made rapid progress toward a balanced budget. Since defense spending was by then over 70 percent of the federal budget, he began sharp cuts in the services' new requests. His espousal of the Dulles-Radford concept of nuclear retaliation as the first line of defense led to especially deep cuts in proposed Army and Navy funds. The FY 1955 budget called for the expansion of the Air Force from 114 to 137 wings in three years, while the Army, Navy, and Marine Corps each faced an average 13 percent manpower reduction in 1955, with more cuts to follow. By June 1957 the Navy was to drop from 1,126 to 1,030 combat ships. In announcing this "New Look" in defense policy in April 1953, the President emphasized the importance of keeping the national economy solvent. His central objective, Eisenhower explained, was "maximum effectiveness at minimum cost." The administration claimed that by relying mainly on nuclear weapons, the United States could get "more bang for the buck." Since the Joint Chiefs of Staff (JCS), led by General Omar Bradley, were unsympathetic to this new

*Rapid Reduc-  
tion in Defense  
Spending*

*A New JCS:  
Admiral Radford,  
Chairman*

strategy, President Eisenhower appointed new chiefs, with Admiral Arthur Radford as Chairman.

*First Soviet  
Thermonuclear  
Bomb, August  
1953*

Just as the United States was beginning to increase its reliance upon nuclear retaliation, the prospect of a nuclear exchange became even more appalling. In August 1953 the USSR exploded its first hydrogen bomb, only some nine months after the United States had tested its first thermonuclear device. By the next year, a new crisis in Southeast Asia led more Americans to wonder whether the increasing emphasis upon nuclear deterrent forces, at the expense of conventional forces, might make the United States unable to respond to limited probes from the other side. In April 1954 President Eisenhower used his famous "domino principle" to describe the likely loss of all of Southeast Asia if the French were defeated in Indochina. By this time the United States was already paying some 78 percent of the French costs for the Indochina fighting. Nevertheless, when the French were besieged and on the verge of defeat at Dien Bien Phu, he refused to intervene, in spite of French pleas and the arguments for American participation of Admiral Radford and the JCS (with the notable exception of the Army Chief, General Ridgway). Although two U.S. attack carriers were standing by off Vietnam, the President recognized that nuclear weapons could not save the French at Dien Bien Phu, or in Indochina, and that there was no other way that America could intervene and be sure of both favorable and decisive results. Dien Bien Phu fell in May 1954, and at Geneva the following summer France concluded a truce with the Viet Minh. French forces then moved south of the 17th parallel, which was temporarily to divide Vietnam until national elections were held two years later.

*Dien Bien Phu  
Crisis, May  
1954*

*First U.S. Com-  
mitment to  
South Vietnam,  
October 1954*

In August of 1954 the National Security Council declared that the Geneva Accords on Indochina were a disaster which threatened to lead to the loss of all Southeast Asia. Secretary of State Dulles, anxious to save at least South Vietnam from Communism, convinced President Eisenhower to extend political, economic, and military aid to the South Vietnamese regime. In October 1954 the President offered Premier Ngo Dinh Diem help in building "a strong viable state, capable of resisting attempted subversion or aggression through military means." At the time America seemed to be replacing France in Vietnam just as it had taken over the British role in Greece and Turkey in 1947. Later events revealed the differences.

*Defense and Foreign Policy*

Beyond this unilateral American commitment to South Vietnam, Dulles also organized the Southeast Asian Treaty Organization (SEATO) in September 1954. This alliance, which included Great Britain, France, Australia, New Zealand, Pakistan, Thailand, and the Philippines, in addition to the United States, was modeled after NATO. The European model, however, was not exact. SEATO lacked NATO's binding commitment to the use of force, and the pact included only two bona fide Southeast Asian states, Thailand and the Philippines. Nevertheless, Dulles believed that he had important international support for his extension of the containment policy to the Far East.

*SEATO Formed,  
September 1954*

SEATO proved to be irrelevant, however, to the Eisenhower administration's main problem with Communist China after the Korean armistice. Right-wing Republicans had hoped that Eisenhower's removal of the U.S. Seventh Fleet from the Formosa Straits in early 1953 would lead Chiang Kai-shek to invade the China mainland. Actually, Chiang's forces did little except to mount minor raids and bombing attacks on China and her shipping from the offshore islands they occupied. More irritated than threatened, China in September 1954 began to bombard the Nationalist-garrisoned Tachen Islands, Quemoy, and Matsu. Eisenhower rejected the advice of those like Admiral Radford who pressed for American bombing of China, and of those like Senator Knowland who wanted a total blockade of the Chinese coast. Instead, in December 1954, he got Chiang to agree to stop his guerrilla raids on the mainland in return for an American guarantee of Formosa and the Pescadores in a new security treaty. In late January 1955, at Eisenhower's request, Congress authorized the President "to employ the armed forces of the United States as he deems necessary for the specific purpose of protecting Formosa and the Pescadores." Although this authority was also extended to "related positions," the offshore islands were not specified in the resolution. Eisenhower then persuaded Chiang to abandon the Tachens, which were some 230 miles north of Formosa. Five of the nine attack carriers in the Pacific Fleet were rapidly assembled to cover this amphibious evacuation. As for Quemoy and Matsu, the President refused to say whether he would use American force to defend them, explaining that his decision would depend upon whether he thought a Chinese attack on them was the opening of an attempted invasion of Formosa. In the spring Eisenhower and Dulles also intimated that the United States might use tactical nuclear weapons to defend Formosa or the offshore islands. By May of 1955 the Chinese bombardment abated,

*First Offshore  
Islands Crisis,  
1954-1955*

*"Formosa  
Resolution",  
January 1955*

and the "brinksmanship" of the President and his Secretary of State had evidently succeeded in this first Quemoy and Matsu crisis.

*The Geneva  
Summit  
Conference,  
July 1955*

After this success in the 1954-55 Quemoy and Matsu crisis, President Eisenhower joined the leaders of Russia, Great Britain, and France at Geneva in July 1955, for the first "Summit Conference" since the end of the Second World War. Although proposals for the unification of Germany, and for nuclear arms control were discussed, no progress was made on either issue. This summit produced no East-West detente, but it did produce a guarded optimism that Soviet-American relations might improve in "the spirit of Geneva."

*The Suez  
Crisis, 1956*

In spite of a massive heart attack in September 1955, Eisenhower was prevailed upon to run again for President in 1956. The Republicans ran on the slogan of peace and prosperity, and the campaign focused on domestic issues. In late July, however, after the United States abruptly withdrew its offer to help finance the Aswan Dam, President Nasser of Egypt nationalized the Suez Canal. Following several months of futile negotiations, Britain and France organized a plan with Israel to use force to take the canal out of Egypt's hands. The U.S. Sixth Fleet had been placed on alert 28 October, the day before Israel launched her attack into the Sinai against Egypt. As previously and secretly arranged, Great Britain and France then intervened, attacking Port Said on 5 November, in a combined amphibious operation designed to seize control of the Suez Canal. The United States had not been informed in advance of this Anglo-French-Israeli attack on Egypt, and President Eisenhower had sought to prevent a war over Suez. He was outraged at his allies' action, which brought war to the Middle East not only on the eve of the American presidential election, but also just as the United States and the United Nations were condemning the Soviet Union's intervention against Hungary. Now Eisenhower found himself aligned with Russia in opposition to the attack on Egypt. Indeed, on 5 November the President received a remarkable Russian proposal that the U.S. Sixth Fleet and the Soviet Navy collaborate in ending the Middle East war. Nothing came of this offer, although the USSR did threaten to launch rockets against British and French cities and to dispatch Soviet "volunteers" to assist Egypt. American economic pressure forced Britain and France to stop their military operation even as they were on the verge of remarkable success. Once Colonel Nasser had blocked the

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Suez Canal, Britain and France had to have American dollar credits to buy western hemisphere oil for their economies to survive. Only by halting their attack could they get these dollar credits from the United States. Although Britain and France immediately—on 6 November—gave way to this American economic pressure, their intervention put a severe strain on the Atlantic alliance and left bitterness on both sides. The 1956 Suez crisis demonstrated how little room there was in the postwar world for Britain or France to take military action of any kind without American concurrence.

*Failure of the  
Anglo-French  
Intervention  
in Egypt,  
November 1956*

The Middle East remained restive. In July 1958 it erupted again, when a bloody coup overthrew the government of Iraq, which had been a firm western ally in the Baghdad Pact. The president of Lebanon, fearing recently united Egypt and Syria, and now Iraq as well, asked the United States to intervene to save his regime which was threatened by civil war. The Sixth Fleet landed its Marines at Beirut, and President Eisenhower also redeployed SAC to warn off Soviet interference. The Lebanese government survived, and American forces were withdrawn in October. The Lebanon operation was a successful limited American intervention in the spirit of the Truman Doctrine and the containment policy. Moreover, it demonstrated the projection capabilities of the Sixth Fleet, with its embarked Marines.

*The Lebanon  
Crisis,  
July 1958*

The next month, on the other side of the world, a new crisis began. The Peoples Republic of China opened an artillery bombardment on the Nationalist islands of Quemoy and Matsu, approximately five miles off China's coast, in August 1958. Since Chiang would not withdraw, the United States ordered the Seventh Fleet to escort the Nationalist supply ships, at least to the three-mile limit. Dulles then flew to Formosa to negotiate with Chiang Kai-shek. On 23 October 1958 Dulles and Chiang issued a joint communique which declared that the Nationalist Government had renounced military force as a means of recapturing mainland China. Once the United States and Formosa had abandoned their previous commitment to see Chiang's forces return to China, the Communist Chinese barrage eased and eventually ended.

*Second Offshore  
Island Crisis,  
1958*

In the meantime, American faith in its permanent technological superiority over the USSR suffered a severe blow when Russia sent up Sputnik, the first artificial earth satellite, in October 1957. It was not until January

*"Sputnik",  
October 1957*

*Fear of Soviet  
Missile  
Capabilities*

1958 that the U.S. Army managed to get the much smaller Explorer satellite into orbit. The public reaction to the Soviet achievement was generally strong. The U.S. space program was accelerated, but America's confidence had been shaken. The secret Gaither Report informed the National Security Council in the autumn of 1957 that the Soviets could overtake the United States in nuclear striking power, and warned that they might even attempt a first strike against America as early as 1959. A Rockefeller Report, written mainly by Henry Kissinger, advocated large increases in American defense spending over the next ten years. Senator John Kennedy predicted that "the deterrent ratio during 1960-1964 will in all likelihood be weighted against us." Eisenhower knew from the secret U-2 reports that the Soviet missile program was not as advanced as the critics believed, but he would not share his information for fear of compromising the secret flights. Instead he put most of the nation's missile money into second-generation weapons: the solid-fueled, submarine-launched Polaris; and the Minuteman ICBM, which could be put underground in concrete silos. Begun in late 1956, the Fleet Ballistic Missile System became operational in early 1960, with the *George Washington* (SSBN 598) the first Polaris submarine to go on patrol. No missile gap actually emerged in the 1960s, but without access to the President's secret intelligence, more and more critics warned of an impending Soviet missile lead as the 1960 Presidential election campaign approached.

*FBM System  
Becomes Opera-  
tional, 1960*

*"Massive Retal-  
iation" versus  
"Flexible  
Response"*

By 1955 the administration had decided that the armed services should no longer prepare to engage in general war or large-scale limited war without the use of nuclear weapons. This strategic decision to diminish American conventional war capabilities was the key to the administration's large reductions in defense spending. By the late 1950s, however, there was growing criticism of what was considered an excessive reliance on strategic nuclear weapons--the capacity for "massive retaliation." The Army had suffered most from the administration's "New Look" policy. General Maxwell Taylor, after retiring as Army Chief of Staff in 1959, published a powerful criticism of existing policy in his book, *The Uncertain Trumpet*. Taylor called for a new policy of "flexible response," so that the United States would be able to fight limited wars with conventional weapons when necessary.

As President Eisenhower's second term ended, the international situation seemed to be rapidly deteriorating.

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In late 1958 Khrushchev had precipitated a new Berlin crisis which, even after it receded in 1959, left tensions high along the East-West division of Europe. By the beginning of 1959 Fidel Castro's revolution had brought him to power in Cuba, and by 1960 the United States had broken off diplomatic relations with his clearly Soviet-leaning regime.

*Castro's  
Victory in  
Cuba, 1959*

Eisenhower's efforts in his last year of office to improve relations with Russia were rebuffed when the Soviets shot down an American U-2 plane over central Russia on 1 May 1960. At the Paris Summit Conference a few days later Khrushchev used the U-2 incident to break up this meeting, and he also indignantly withdrew the Soviet invitation for Eisenhower to visit Russia later in the year. In September of 1960 Khrushchev came to New York and shocked Americans by his shoe-pounding attack on American policy at the United Nations.

*The U-2 and the  
Paris Summit,  
May 1960*

Thus by the end of the Eisenhower administration there was a growing national feeling that the United States was losing its grip domestically, diplomatically, and strategically. The new Republican presidential candidate, Richard M. Nixon, chose to stand on Eisenhower's record, and to run on his own eight years' experience as Eisenhower's Vice President. Nixon told the Republican National Convention that "America is the strongest nation militarily, economically, and ideologically in the world." The Democrats nominated a forty-three-year-old millionaire senator, John F. Kennedy, who found America losing power and prestige. The time had come, he told the American people, "to get the country moving again."

*The  
Kennedy-Nixon  
Race, 1960*

## VI. The Kennedy Years: 1960-1963

President Kennedy came to office determined to undertake a great build-up of American military power. In the campaign he had decried declining American world prestige, and reminded voters that Cuba had been lost to Communism during the Eisenhower years. For Kennedy, national security policy was a long-standing central interest. In his inaugural address the new President took pride in "defending freedom in its hour of maximum danger." "Let every nation know," he declared, "that we shall pay any price, bear any burden, meet any hardship, support any friend, oppose any foe to assure the survival and success of liberty." He was determined both to strengthen and broaden America's military capabilities. He chose the dynamic

*Secretary  
McNamara and  
Defense  
Reorganization*

president of Ford Motor Company as his defense secretary, and Robert McNamara quickly took hold of military policy and the Pentagon. He reorganized the entire Department of Defense, and brought in his own people, mostly aggressive executives expert in the new management techniques of computers and systems analysis. McNamara and his Whiz Kids took charge of a tremendous increase in American military power. The new Kennedy-McNamara strategy of "flexible response" promised something for everyone. The whole object was to increase the options open to the President in his conduct of defense and foreign policy.

*"Flexible  
Response"*

*"Counter-  
Insurgency"*

The President immediately brought General Maxwell Taylor to the White House, and a rapid build-up of limited war and counter-insurgency forces was organized. In March of 1961 Kennedy asked Congress for additional funds to create a balanced military force "to prevent the steady erosion of the free world through limited wars." The shift from the policy of massive retaliation was well underway.

*Expansion of  
Missile  
Programs*

Although the new administration soon discovered that the "missile gap" did not exist, Kennedy nevertheless supported and accelerated both the Minuteman and Polaris programs. He immediately ordered five additional Polaris submarines, and the Polaris program eventually produced a fleet of forty-one Fleet Ballistic Missile (FBM) submarines, each carrying sixteen intercontinental ballistic missiles. To offset superior Soviet conventional military strength, Kennedy pressed for enough ICBMs and submarine-launched missiles to give America a decisive nuclear superiority over Russia by the mid-1960s. With this build-up in military power, the United States defense budget rose from \$43 billion in 1960 to \$56 billion in 1962.

*Increased  
Defense  
Spending*

*Increased  
Military Aid  
to South  
Vietnam, 1961*

In early 1961, during the first month of his administration, President Kennedy decided against military intervention in the Laos crisis, and by mid-1962 diplomacy had produced an agreement to neutralize Laos. Moreover, although Kennedy made a serious mistake in supporting the CIA's Bay of Pigs plan, he stopped short of direct American military intervention when the Cuban exile forces were overwhelmed on the beaches. It was in South Vietnam that Kennedy decided to take a stand, and he ordered a sharp increase in American military support for the Diem regime. Beginning in 1961 with the dispatch of some 400 American special forces troops to South Vietnam, Kennedy expanded the number of American advisers to almost 20,000 by the time of his assassination in late 1963. For a time in 1962

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the war went better in South Vietnam, but by autumn 1963 the situation was deteriorating rapidly. As the Viet Cong gained ground, Diem failed to institute reforms, and became more isolated and dictatorial. By late August 1963 the United States Ambassador, Henry Cabot Lodge, had informed Washington of his tacit support for an officers' plot to overthrow Diem. When the military coup came in November, it brought a succession of ineffectual military leaders who could not bring order out of the chaos in Saigon. By its silent role in the coup, the United States was now effectively committed to the success of the new government in South Vietnam.

*The U.S. and  
the Overthrow  
of Diem,  
November 1963*

Europe also produced crises for the Kennedy administration. Kennedy met Khrushchev in Vienna in June of 1961, when the Soviet leader gave America a six month deadline for a German peace treaty, which would jeopardize West Berlin. When he returned home Kennedy decided to take a strong stand in defense of Berlin by calling for additional military funds, the activation of reserves, and an expanded draft. When the USSR responded by building the Berlin Wall to seal East Berlin and East Germany from the West, the United States was taken by surprise. Kennedy chose not to challenge this Soviet move. West Berlin remained intact, however, and the Soviets dropped their deadline for the German peace treaty.

*Berlin Crisis,  
Summer 1961*

The greatest crisis in the Kennedy years came in 13 days in October 1962. In spite of repeated assurances to the contrary, the Soviet Union emplaced some 42 intermediate range ballistic missiles in Cuba. Once President Kennedy was informed, on 16 October, that Soviet missile sites had been detected in Cuba, a Soviet-American nuclear confrontation rapidly emerged. In a speech to the American people on Monday evening, 22 October, President Kennedy announced that the United States would impose a "quarantine"—in fact, a naval blockade—around Cuba, to prevent the arrival of additional Russian missiles. The President warned the USSR that the United States would consider any nuclear missile launched from Cuba against any Western Hemisphere nation as a Soviet attack on the United States, which would bring "a full retaliatory response upon the Soviet Union." It was a full day after the U.S. Navy warships established the quarantine some 500 miles from Cuba before the approaching Soviet merchant ships finally turned away. It was not until the following Sunday, 28 October, when the United States was on the brink of

*The Cuban  
Missile Crisis,  
October 1963*

*The Naval  
"Quarantine"  
of Cuba*

## Defense and Foreign Policy

military intervention in Cuba, that Khrushchev finally agreed to withdraw the missiles.

Kennedy's strong stand was acclaimed in this country, and most of the world saw the crisis as a serious setback for the Soviet Union. In the short run, this episode probably helped unseat Khrushchev in 1964. The longer-term results of the 1962 missile crisis on Soviet defense and foreign policy are still debated. This crisis, by its demonstration of the utility of naval forces, gave new impetus to Russia's determination to build a navy capable of supporting its world interests.

## VII. Escalation of the Vietnam War: 1964-1968

*Lyndon Johnson  
Becomes  
President,  
November 1963*

After President Kennedy was assassinated in Dallas in November 1963, his Vice President, Lyndon Johnson, moved quickly and decisively to get Congress to enact the ambitious domestic program Kennedy had proposed but had been unable to achieve. Johnson's skillful leadership in domestic matters upon his unexpected succession brought him great national standing as a "consensus" President. He had no real challenger for the 1964 Democratic nomination, and energetically set about winning election in his own right. The Republican nominee was Senator Barry Goldwater, the candidate of the militant conservative faction within the Republican party.

*"Tonkin Gulf  
Resolution",  
August 1964*

Although in the spring of 1964 Defense Secretary McNamara and the Joint Chiefs of Staff had recommended that the United States bomb North Vietnam to stiffen faltering South Vietnamese resistance, Johnson was unwilling to expand the war. He had, however, permitted the organization of contingency plans for escalation, approved South Vietnamese covert operations against North Vietnam, and authorized surveillance of the North Vietnamese coasts by American destroyers in the Gulf of Tonkin. When the destroyers *Maddox* and *Turner Joy* became involved in incidents with North Vietnamese torpedo boats off the coast of North Vietnam, Johnson ordered retaliatory air strikes against North Vietnam. Moreover, he used these incidents to pass the joint congressional "Tonkin Gulf Resolution." This resolution, sponsored by Senator J. William Fulbright, and passed almost unanimously, gave the President power "to take all necessary measures to repel any armed attack against forces of the United States and to prevent further

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aggression." The President now had authority to wage full-scale war in Vietnam.

Johnson was elected by a landslide majority—he received 61.1 percent of the popular vote—and in 1965 he set about organizing his new domestic program for civil rights, social justice, and the creation of the "Great Society." By April of 1965, however, he faced a crisis in the Caribbean. Upon the advice of the U.S. ambassador on the spot, Johnson used the Navy, Marines, and airborne troops to intervene militarily in a civil war in the Dominican Republic. Initially, the administration explained this action as an effort to protect endangered American lives. Soon, however, it became evident that it had been ordered to prevent the success of a leftist faction of Dominican army colonels who were rebelling against the conservative generals. Johnson thus had acted mainly out of his fear of a Communist coup and another Cuba. The American intervention was a success, restoring order and leading to the later election of a moderate president. The President's lack of candor in explaining his objectives reduced the high level of public and congressional confidence in him. Lyndon Johnson's shifting grounds for intervention had begun to create the notorious "credibility gap."

*Dominican  
Republic  
Crisis, April  
1965*

The early months of 1965 also brought new pressure on the President to help the troubled Republic of Vietnam. McGeorge Bundy's February 1965 mission to South Vietnam convinced President Johnson that the United States had to undertake bombing of North Vietnam. The initial decision was for limited retaliatory bombing, after a vicious Viet Cong terrorist attack on an American advisers' barracks in Pleiku. This retaliation, however, soon phased into Operation Rolling Thunder, the steady bombing of North Vietnam which continued for the next three years. Johnson and his advisers, fearing the damage to American international prestige that defeat in Vietnam would bring, had adopted a new policy of "sustained reprisal" against North Vietnam. Once continuous bombing began, more American troops were needed to protect American airbases. In March Johnson began to commit all the available Marine and airborne forces, which raised American troop levels from 33,500 in April to 75,000 by June.

*Operation  
Rolling  
Thunder,  
Spring 1965*

Secretary of Defense McNamara again visited Vietnam in July 1965, and he recommended the commitment of 200,000 U.S. troops by the end of 1965, to be followed by another 100,000 in 1966. This escalation was designed to increase

*First American  
Combat Units  
to Vietnam,  
March 1965*

*Escalation of  
Troop Commit-  
ment to  
Vietnam, July  
1965*

the pressure against the Viet Cong in South Vietnam, while continued air strikes against North Vietnam raised the cost of the war for Ho Chi Minh. On 28 July 1965 President Johnson announced his decision to send 50,000 more American troops immediately to Vietnam. He defended this decision to escalate the war by pointing to the "lessons of history," the failures of appeasement in the 1930s, and the precedents of his predecessors' decisions since 1950 to support South Vietnam against Communist aggression. Finally, he insisted that if the United States were driven out of Vietnam, "no nation can ever again have the same confidence in American promises or in American protection."

*Increasing  
Opposition to  
the Vietnam  
War*

For three years from the spring of 1965, President Johnson continued the build-up of American forces in South Vietnam and the heavy bombing of North Vietnam. Victory, however, continued to elude the United States and its protege, the Republic of Vietnam. At home, the war rapidly overshadowed all other aspects of Johnson's program. He lost his consensus in Congress as more and more senators and congressmen split with him over the war. Indeed, by the end of 1967 the war seemed to dominate every area of American life. There were almost half a million troops in Vietnam, and deaths in the war now totalled over 20,000. The build-up of Viet Cong guerrillas and regular North Vietnamese forces in the South had kept pace with the American escalation, and North Vietnam's General Giap was prepared to outlast the United States in a war of attrition. In spite of Johnson's several efforts at "peace offensives" during bombing pauses, no negotiations with Ho Chi Minh's government could be developed.

*Economic  
Impact of the  
Vietnam War*

Economically, the effects of the war were severe. Johnson tried to fight the war without either threatening his "Great Society" program, or imposing a tax increase. Since the economy was already booming, the additional Vietnam costs quickly fed inflation. In FY 1966, the war cost \$8 billion--some \$5 billion more than had been estimated. In FY 1968, the war cost \$27 billion, and the deficit was an enormous \$28 billion. Rapid inflation followed.

As the military forces rapidly expanded for their wartime role, these great increases in defense spending brought a whole range of new problems. The services were given funds to support their mission in Southeast Asia, but often at the expense of other missions and new weapons systems. The tremendous commitment to Vietnam meant a marked decline in the American readiness to fight

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simultaneously the "2-1/2 wars" demanded by our overall plans and military policy. Although hawks justified the war as a way of reassuring allies of U.S. reliability, this decline in military capability in Europe and in the Far East outside of Southeast Asia was of concern to our allies. In 1966 General de Gaulle took France out of military participation in NATO, and later France recognized Communist China. In the 1967 Six Day Arab-Israeli War, the American role was minimal. Russian tanks could intervene in Czechoslovakia in the summer of 1968, confident that the United States would be unlikely to retaliate.

*Impact of  
Vietnam War  
on American  
Global Strategy*

The turning point in the American commitment came with dramatic suddenness when the Communists launched their Tet offensive on 30 January 1968. With complete surprise, the Viet Cong simultaneously attacked thirty-nine of the forty-four provincial capitals in South Vietnam, as well as Saigon and the American Embassy. Called in from the countryside, American forces eventually repelled and inflicted heavy casualties on the Viet Cong.

*The Tet  
Offensive,  
January-  
February 1968*

After Tet, General Westmoreland, who now had some 535,000 American troops in Vietnam, requested 206,000 more by the end of the year. This would require the mobilization of 250,000 reserves and increase the 1969 budget by about \$10 billion. President Johnson sought advice. He found that many of the staunchest hawks and cold warriors--Dean Acheson, Henry Cabot Lodge, and General Ridgway, for example--now recommended that he seek disengagement.

By the end of March, President Johnson had made up his mind about his future course of action. In a national television broadcast on the evening of 31 March he addressed--and stunned--the American people. "Beginning immediately," he announced, "and without waiting for any signal from Hanoi, we will confine our air and naval attacks in North Vietnam to the military targets south of the 20th parallel." After inviting North Vietnam to respond to this American initiative by entering into peace negotiations, Johnson dropped his final bombshell. "I shall not seek," he declared, "and I will not accept, the nomination of my party for another term as your President."

*The End of  
Escalation,  
March 1968*

This sudden limitation in American policy, and the opening for new national leadership, did not immediately end the American role in the Vietnam War, which was to continue for almost five more years. It did, however, end the

escalation and prepare the way for the gradual American military withdrawal.

### VIII. From War to Peace: 1968-1974

#### *Kissinger's Role in the Nixon Administration*

Dwight Eisenhower's Vice President, Richard Nixon, ran against Lyndon Johnson's Vice President, Hubert Humphrey, in the 1968 election, and was elected by a narrow margin. President Nixon chose Henry Kissinger as his National Security Advisor, and the Harvard professor was soon the dominant influence in the President's foreign policy decisions. The National Security Council organized and coordinated foreign policy formulation, while the State Department dealt mainly with diplomatic routine. Both Kissinger and Nixon recognized that the old bipolar Cold War world had changed. They therefore tried to find a way out of America's open-ended global containment commitments without sacrificing American international prestige. Realizing that the United States was badly overextended, Kissinger, the student of Metternich and Bismarck, sought to apply some of the concepts of traditional balance of power diplomacy to the contemporary situation.

#### *The Policy of "Vietnam- ization"*

In January 1969 Kissinger produced for President Nixon a list of five options for Vietnam policy, ranging from a military effort for total victory to a hasty retreat. Nixon first narrowed the choice to the alternatives of a rapid withdrawal, or a slow negotiated disengagement. Eventually, he decided upon the latter, which he would describe as "Vietnamization," the shift of the burden of fighting the war to the South Vietnamese Army as American troops were gradually brought home. In March 1969 Nixon announced the first reduction in American forces in Southeast Asia since the war's escalation began in earnest four years before.

#### *The "Nixon Doctrine", August 1969*

In August at Guam, the President announced what came to be called the "Nixon Doctrine." In the future the United States would expect Asians to be primarily responsible for their own defense, while the United States provided economic support and a nuclear umbrella. This was in a sense the application of "Vietnamization" to all of America's Asian allies. The Nixon Doctrine effectively set aside the United States commitment, which began with the Truman Doctrine, to contain Russia and China everywhere.

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By the end of 1969 the administration had withdrawn over 100,000 American troops from Vietnam. Casualty lists and draft calls were both steadily declining. On the whole, Nixon's policy was reducing the scale and intensity of the anti-war protest; most Americans were willing to let him pursue this slow de-escalation. The President misjudged American sentiment, however, when he approved the "Cambodian Incursion" in May of 1970. Militarily, the American military movement into neutral Cambodia was successful, but politically it revitalized the declining anti-war movement, and brought the Senate to pass the Cooper-Church amendment, which blocked any further intervention in that country.

*Troop  
Withdrawals  
from Vietnam*

*The "Cambodian  
Incursion" and  
the Anti-War  
Movement,  
May 1970*

In the summer of 1971, as the country suffered from simultaneous recession and inflation, Nixon took startling new initiatives in both economic and foreign policy. Economically, he imposed a 90 day freeze on prices and wages, devalued the dollar, and organized a new set of domestic and international economic controls. In foreign policy, on 15 July 1971 he announced that within the next year he would visit the People's Republic of China to take up with the Peking leaders the question of normalizing relations between China and America. He made the trip in February 1972. Although disagreement on the future of Taiwan prevented the resumption of formal diplomatic relations, the dialogue between the United States and China was well begun. This opening to China proved to be an enormously popular foreign policy departure.

*President  
Nixon's Visit  
to Peking,  
February 1972*

From the time he came to office in 1969, President Nixon was determined to seek detente--across the board reduction in tensions--with the USSR. Kissinger approached the problem as a matter of comprehensive revision of Soviet-American relations, rather than as a search for a series of isolated diplomatic bargains. The Strategic Arms Limitation Talks--SALT--which opened in Helsinki in 1969 were an important part of this new policy. There was an almost immediate and prolonged stalemate in these talks. The Soviets were anxious to limit the American defensive Anti-Ballistic Missile (ABM) capability, while the United States wanted to limit the offensive threat of the new giant Soviet ICBMs. In May 1971 an agreement in principle was reached, which called for a numerical limit on each side's ABMs, and a freeze on ICBM numbers at their existing levels. In May 1972, Nixon traveled to Moscow, and after further negotiations, signed the agreements which made up SALT-I. Although these five-year agreements have recently

*Arms Limita-  
tions and the  
Policy of  
Detente*

*SALT-I  
Agreements,  
May 1972*

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expired without formal renewal or new agreements, both nations have declared they will continue to abide by their provisions. SALT-I in effect recognized Soviet equality in nuclear striking power; Nixon was willing to concede this in order to limit Russia's offensive and defensive missiles.

President Nixon had no challenger for the Republican nomination in 1972. The Democrats nominated Senator George McGovern, whose reputed ideological position served to unify the opposition, divide his own party, and alarm large numbers of independents. Nixon's advantage was reinforced in October by Kissinger's breakthrough in the Paris peace talks with North Vietnam. On 26 October Kissinger told the press that "peace is at hand," although North Vietnam was still haggling, and South Vietnam had not yet agreed to the proposed terms.

*The Vietnam  
Cease-Fire,  
January 1973*

The election gave Nixon a landslide victory with 60.7 percent of the popular vote. By resuming massive bombing of North Vietnam, Nixon brought the Hanoi government to sign the cease-fire agreement on 27 January 1973. The agreement committed the United States to withdraw all American troops from South Vietnam within 60 days, while the North Vietnamese troops remained in place. The truce finally got the United States out of the war, but it meant that the days of the Republic of Vietnam were numbered. The final collapse came just over two years later, in April of 1975.

*The Watergate  
Scandal,  
1973-1974*

Soon after President Nixon began his second term the Watergate scandal began to surface and dominate the news. As the scale of the cover-up emerged, public confidence in the administration plummeted. Soon the revelations overshadowed all other aspects of Nixon's policy.

*The Yom Kippur  
War, October  
1973*

The most important international event in President Nixon's remaining months in office was the Arab-Israeli War of October 1973. While the United States furnished massive aid to Israel, the Soviet Union poured weapons into Syria and Egypt. In this "Yom Kippur War" the USSR demonstrated its willingness to use naval power to deter the United States. Although Henry Kissinger, now Secretary of State, avoided a nuclear confrontation and arranged the eventual cease-fire, the Arab oil embargo which the war provoked marked the beginning of a new set of economic and strategic problems for the United States, whose consequences are still not fully understood.

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The end finally came for Richard Nixon on 9 August 1974 when he resigned his office as President. Vice President Gerald Ford now became the first appointed President in the history of the American republic.

*Gerald Ford  
Becomes  
President,  
9 August 1974*

**IX. From Ford to Carter: 1974-1977**

As President Ford took office, the United States emerged from a series of crises--Vietnam, the 1973 Middle East War, and Watergate--with its political institutions and international standing remarkably unscathed. It was a tribute to the inherent stability of American society and politics, and to the character and leadership of the new President, that these domestic and international setbacks at the end of the Nixon years did not produce deep national divisions or political upheaval. President Ford's obvious decency and common sense revived public confidence in the Presidency, even among those who disagreed with the President's generally conservative views on specific policy issues. The United States put the nightmare of Watergate behind it, and the Ford administration began the difficult process of coping with a host of problems--domestic, diplomatic, and strategic--which the Nixon administration had neglected in its last ditch fight to stay in office.

President Ford kept President Nixon's Secretary of State, Dr. Kissinger, who continued his energetic and highly personal shuttle diplomacy which played a central role in reducing tensions in the Middle East and in bringing about an interim settlement. While no permanent solution was achieved, new tensions were reduced and a larger settlement began to appear eventually possible.

*Kissinger's  
"Shuttle  
Diplomacy" in  
the Middle East*

By 1975 the effects of the 1973-74 Arab oil embargo were evident in the economies of the United States and the rest of the world. The embargo, and the consequent drastic increase in the price of oil, were major reasons for the dangerous inflation and rising unemployment which moved the world into the most serious recession since the 1930s. The impact on all countries--capitalist and communist, developed and undeveloped--has demonstrated the economic interdependence of the contemporary world. In 1974 the United States responded to this new economic weapon with public ruminations about our possible military intervention in the Middle East in case of a threatened national economic "strangulation" by another oil embargo. Should the United States ever be driven to exercise this military option in

*The Energy  
Crisis*

the Middle East, the U.S. Navy and Marine Corps would presumably be the key instruments for its execution. Moreover, any such operations would demand a substantial ASW capability, since Soviet attack submarines would be the principal threat to the sea lines of communication.

*The Assertion  
of Congressional Power  
in Defense and  
Foreign Policy*

Following the congressional elections of November 1974, President Ford faced a new Congress which demanded a larger role in foreign policy. Democrats and Republicans in Congress were reacting against a long-term growth in executive power. The disillusionment with Presidential policy in the Vietnam War, and the disgrace of Richard Nixon, led to new attacks on the "Imperial Presidency" which was alleged to have developed since Franklin Roosevelt. Along with this criticism of presidential power, there were intensified congressional and public attacks on Secretary of State Kissinger. Kissinger's efforts for detente met with opposition from both the left and right. On the right, conservatives feared the implications of his arms control policy for America's strategic position. On the left, liberals demanded that the Soviet Union improve their treatment of dissidents and would-be emigrants before further Russian-American agreements were concluded. In late 1974 Senator Jackson's amendments (demanding concessions on Soviet immigration policy) to the Soviet-American trade agreement brought Russia to reject the revised treaties. After Turkey's intervention in Cyprus in 1974, Congress--in the face of administration protests--attempted to force Turkey to withdraw by voting to stop U.S. military aid. This assertion of congressional power backfired, for by the time the administration got Congress to moderate its position, the Turks had evicted the United States from Turkish bases, and had begun to make other arrangements for weapons supplies.

*Congressional  
Opposition to  
Overseas  
Involvements*

In early 1975 the Congress refused to support the Ford administration's demands for emergency financial support for the Saigon regime just before the final collapse of South Vietnam. Similarly, as the Portuguese colonial empire collapsed, Congress refused to support an American involvement in Angola. There Russia used some 15,000 Cuban troops with Soviet naval logistical support, and enormous economic and arms aid, to install an Angolan government oriented towards Moscow. The USSR now maintains a permanent naval presence in the North Atlantic, the Mediterranean, and the Indian Ocean. Congressional reservations on the administration's proposals for new Indian Ocean bases showed how much the temper of Congress had changed

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ASW

*Defense and Foreign Policy*

since the days of President Kennedy and before, when there was automatic support for American bases almost anywhere. On the other hand, Congress has been unable to take the initiative in the direction of foreign policy although it can on occasion keep the administration from acting.

Although congressional assertiveness has both affected presidential control of foreign and defense policy, and restricted the flexibility of American diplomacy, there has been no drastic shift in American international policy since the resignation of President Nixon. The United States' principal international commitments, to NATO and Japan, are intact, and its strategic position remains strong. Indeed, public and congressional willingness to increase defense spending has been growing. President Ford's quick use of naval and marine forces in reaction in the Mayaguez affair of May 1975 was also enormously popular in the United States, coming as it did on the heels of the South Vietnamese collapse.

*American  
Commitments  
and the  
Post-Watergate  
Presidency*

The presidential election campaign in 1976 effectively created a hiatus in new American foreign policy initiatives. The unpredictable impact of foreign policy issues on domestic politics was dramatically demonstrated in Ronald Reagan's use of the previously obscure proposed Panama Canal treaty revision as an issue to stir up deep nationalistic emotions in the American public.

In 1977 a new Democratic administration took office, led by President Jimmy Carter, an Annapolis graduate and former naval officer. As a new figure in national politics, President Carter had no legacy of Vietnam (or Watergate) to defend, and his lack of Washington experience was one of his great electoral assets. In his inaugural address Carter emphasized detente, disarmament and human rights. It has proved difficult, however, to press for Soviet-American detente and a new arms control agreement, while at the same time castigating Russia for her violations of human rights. The announcement of the U.S. intention to withdraw American troops from South Korea caused some uncertainty in Japanese-American relations, as well as a good deal of domestic opposition. There is also growing concern over the growth of the Soviet navy, which in the past decade has vastly improved its ability both to defend the USSR against sea attack, and to interfere with America's sea lines of communication. On the other hand, defense spending continues to rise, and the military has made a significant recovery from the demoralization of the

*The Carter Administration:  
Problems of  
the First Year*

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Vietnam period. America is still a central figure in the efforts to bring a lasting settlement in the Middle East, and peaceful change in southern Africa.

*Consensus and  
Continuity in  
U.S. Strategy  
and Policy*

U.S. relations with its allies, and with its potential adversaries--Russia, China, and the East European states--are remarkably stable. The U.S. military is strong, and there is no great division of American opinion about any issue of defense or foreign policy. The best indication of the comparatively low key of American debate on international issues is that a proposed revision of the Panama Canal treaty, to take effect only 22 years hence, should be the diplomatic and strategic question that most arouses public concern and emotion today.

## SELECTED BIBLIOGRAPHY

Stephen E. Ambrose, Rise to Globalism: American Foreign Policy 1938-1970, Baltimore, Penguin, 1971.

Thomas A. Bailey, A Diplomatic History of the American People (9th edition), New York, Appleton-Century-Crofts, 1972.

Bernard Brodie, War and Politics, New York, Macmillan, 1973.

Robert A. Divine, The Reluctant Belligerent: American Entry into World War II, New York, Wiley, 1965.

Edwin B. Hooper, Dean C. Allard, and Oscar P. Fitzgerald, The United States Navy and the Vietnam Conflict, Vol. I, The Setting of the Stage to 1959, Washington, D.C., Naval History Division, 1976.

Samuel P. Huntington, The Common Defense: Strategic Programs in National Politics, New York, Columbia, 1961.

George F. Kennan, American Diplomacy 1900-1950, Chicago, University of Chicago, 1951.

Paul M. Kennedy, The Rise and Fall of British Naval Mastery, New York, Scribner's, 1976.

Samuel Eliot Morison, The Two-Ocean War: A Short History of the United States Navy in the Second World War, Boston, Little, Brown, 1963.

Russell F. Weigley, The American War of War: A History of United States Military Strategy and Policy, New York, Macmillan, 1973.

International Institute for Strategic Studies, Adelphi Papers: No. 122, "The New Environment;" No. 123, "Super-Powers and Navies;" and No. 124, "Competition and Conflict." London, 1976.

## APPENDIX B

## Congress and Antisubmarine Warfare

### Introduction

This appendix provides a selective review of the public Congressional record as presented in its hearings and reports. It focuses primarily on the interface between the Navy and the Department of Defense on the one side and the Appropriations Committees in the House and Senate on the other. The result is a chronological evolution of Congressional views on antisubmarine warfare funding over the thirty-two year period from 1945 until 1977. Within this time, four phases emerge:

Growing Congressional Concern The Soviet Submarine Threat and Reorganization	1945-1955 1956-1965
ASW in the Vietnam ERA	1966-1974
Post-Vietnam Congressional attitudes	1975-1977

The objectives of this study are to:

*Report  
Objectives*

(1) Set forth official Navy policy as presented to Congress on ASW in general, and sea-based airborne ASW in particular.

In tracing the historical development of this policy, the official statements of the Chief of Naval Operations and his testimony before Congress have been emphasized. Where possible they have been supplemented by the briefings given to Congress by the directors of Op-31, Op-001 and Op-095, all specialized naval ASW officers, during the periods these offices existed. To a lesser extent, the official policy statements of the Secretary of Defense and the Secretary of the Navy have been

## Congress and Antisubmarine Warfare

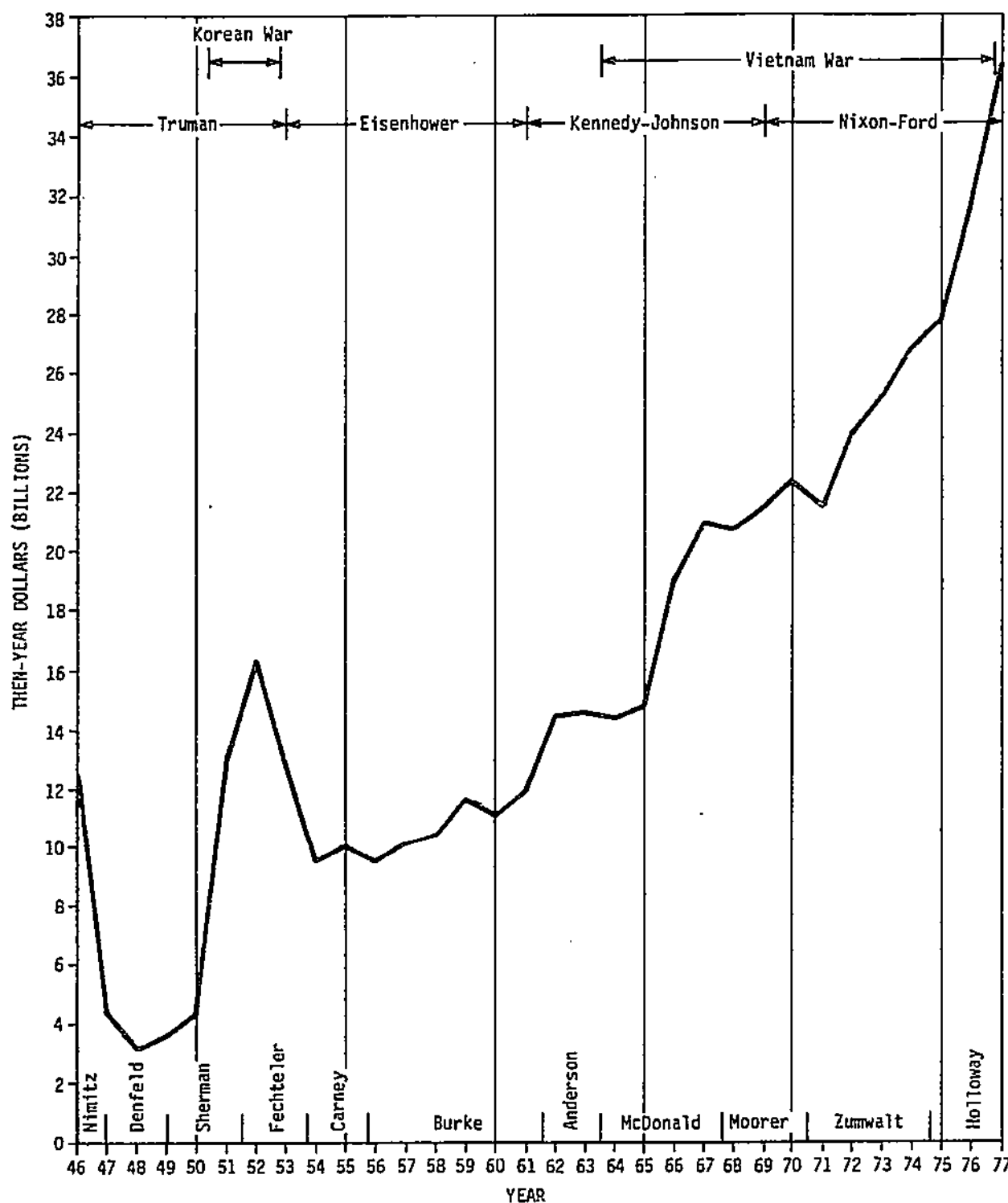
LEGISLATIVE			CALENDAR YEARS					
APPROPRIATIONS COMMITTEE	HOUSE	CHMN		John Taber R. NY	Clarence Cannon D. MO	John Taber R. NY	Clarence Cannon D. MO	
		DEF SUBCOM CHMN	George H. Mahon D. TX					
	SEN.	CHMN		Styles Bridges R. MI	Kenneth McKellar D. TN	Styles Bridges R. MI	Carl Hayden D. AZ	
ARMED SERVICES COMMITTEE	HOUSE	CHMN		W. G. Andrews R. NY	Carl Vinson D. GA	Dewey Short R. MO	Carl Vinson D. GA	
	SEN.	CHMN		Chan Gurney R. SD	Millard Tydings D. MD	Richard B. Russell D. GA	Leverett B. Saltonstall R. MA	
EXECUTIVE								
PRESIDENT			Harry S Truman				Dwight D. Eisenhower	
SECDEF			None	James V. Forrestal	Louis Johnson	George C. Marshall	R.A. Lovett	
SECNAV			James V. Forrestal	John L. Sullivan	Francis P. Matthews	Daniel A. Kimball	Robert B. Anderson	
CNO			E.J. King	Chester Nimitz	Louis E. Denfeld	Forrest P. Sherman	William M. Fechteler	
LEGISLATIVE			CALENDAR YEARS					
APPROPRIATIONS COMMITTEE	HOUSE	CHMN	Clarence Cannon R. MO			George Mahon D. TX		
		DEF SUBCOM CHMN	George Mahon D. TX					
	SEN.	CHMN	Carl Hayden D. AZ					
ARMED SERVICES COMMITTEE	HOUSE	CHMN	Carl Vinson D. GA				L. Mendel Rivers D. SC	
	SEN.	CHMN	Richard B. Russell D. GA					
EXECUTIVE								
PRESIDENT			Dwight E. Eisenhower		John F. Kennedy	Lyndon B. Johnson		
SECDEF			C.E. Wilson	Neil H. McElroy	Thomas S. Gates, Jr.	Robert S. McNamara	Clark M. Clifford	
SECNAV			Thomas S. Gates, Jr.	W.B. Franke	John B. Connelley	Fred M. Korth	Paul H. Nitze	
CNO			Arleigh A. Burke		G.W. Anderson	David L. McDonald	Thomas H. Moorer	
LEGISLATIVE			CALENDAR YEARS					
APPROPRIATIONS COMMITTEE	HOUSE	CHMN	George Mahon D. TX					
		DEF SUBCOM CHMN	George Mahon D. TX					
	SEN.	CHMN	Richard B. Russell D. GA	A.J. Ellender D. LA	John D. McClellan D. AK			
ARMED SERVICES COMMITTEE	HOUSE	CHMN	L. Mendel Rivers D. SC	F. Edward Hebert D. LA		Melvin Price D. IL		
	SEN.	CHMN	John C. Stennis D. MS					
EXECUTIVE			Elliot R. Richardson					
PRESIDENT			Richard M. Nixon		Gerald R. Ford	Jimmy Carter		
SECDEF			Melvin R. Laird		James R. Schlesinger	Donald H. Rumsfeld	Harold Brown	
SECNAV			John M. Chafee		John W. Warner	John W. Middendorf	W.G. Claytor	
CNO			Thomas H. Moorer	Elmo R. Zumwalt		James L. Holloway III		

Personalities Summary.

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ASW

Congress and Antisubmarine Warfare



Navy Fiscal Summary Chart.

*Congress and Antisubmarine Warfare*

extracted as they related to the formulation or alteration of sea-based airborne ASW.

(2) Chronicle congressional reaction, biases, and concerns relating to the Navy's ASW programs.

This will reflect the views of the Committees in general, as well as those of specific Congressmen influential in naval affairs over the years.

(3) Summarize Congressional funding decisions.

This will reflect the resulting impact on the Navy ASW programs, particularly those dealing with sea-based airborne ASW.

*Emphasis on  
Appropriations  
Committees*

In summary, the record speaks for itself. It shows a Congress more interested in annual budget considerations than in the fine points of Naval strategy--natural for the Appropriations Committees--and that the financial control Congress has exercised has had a considerable influence on the pace of the Navy's ASW programs.

*Immediate  
Postwar Years*

Before looking at the specifics, it is worth noting the general situation in which the Navy found itself in the immediate post World War II period. The financially unrestrained growth in size and technology in time of war had given way to the more typical annual doling out of greatly reduced funding in time of peace. The postwar periods which followed World Wars I and II were marked by two conflicting, and emotional, issues. The most pressing was the public sentiment to deemphasize all things military and to get on with managing the peace. After World War II, however, the U.S. Navy found itself in an awkward position. Not only did it possess the largest fleet ever assembled, it and its potential enemy had also acquired the major technical military advances of both its allies and its enemies. Clearly, these advances would have an enormous impact on future naval operations.

Thus, the problem facing both the Congress and the Navy was how to demobilize and at the same time preserve

*Congress and Antisubmarine Warfare*

the enormous capital assets of the Navy while shifting to the new technologies available. After 1945 both the Administration and Congress were sensitive to these issues as each annual budget—mere fractions of their wartime counterparts—was prepared. Ultimately this dollar-oriented concern about the military continued to prevail during all periods short of actual combat. It was especially prevalent when there was no active enemy at hand; the cost of the military establishment was escalating and its technical complexity became more and more difficult for outsiders, including Congress, to understand. This situation is summarized in figure three, which correlates the total Navy appropriation with a number of significant historical events and prominent personalities.

*Congressional  
View*

The peacetime funding process of the Navy as with the other services is revealed before the Appropriations Committees of Congress. This is the most public arena for budget discussions between the Navy, the Executive and the Congress. Historically, the most important of the two Appropriations Committees has been the House Appropriations Committee where all appropriation bills began before 1967. Beyond that time the Senate Appropriations Committee assumed a more influential role. In fact, the Navy deals with four Committees: the Appropriations and Armed Services in the House and Senate.\* The House Armed Services Committee reviews the proposed programs, and authorizes those programs it determines to be vital, but it is the prerogative of the Appropriations Committee to assign the money.\*\*

*House  
Appropriations  
Committee*

\* The Congress has recently added two more committees whose deliberations affect the Navy's budget. In June 1974, Congress enacted the Congressional Budget and Impoundment Control Act (PL 93-344). This bill created the House and Senate Budget Committees which were given the responsibility for initially reviewing the President's budget and proposing overall spending guidelines for the authorization and appropriation committees.

\*\* The Armed Services Committees were born out of a consolidation of the Naval Affairs and Military Affairs Committees as a result of the Legislative Reorganization Act of 1946. In 1959, the Armed Services Committees attached a rider to their military construction authorization bill (PL 86-149) which gave these committees the power to set appropriations ceilings for the purchase of aircraft, missiles and ships. By 1963, they had assumed this same authorization authority for all RDT&E programs (PL 88-174). Once the authorization limits have been set by the Armed Services Committees they cannot be exceeded by the Appropriations Committees, although they can be reduced.<sup>1</sup> It is this responsibility that makes this committee one of the most powerful in the House.

Over the years since the Second World War, the House Appropriations Committee has practiced fiscal restraint above all else. This attitude was summed up by Representative Clarence Cannon of Missouri, the former Chairman of the House Appropriations Committee:\*

It has long been an unwritten rule of this Committee on Appropriations that the budget estimate is to be taken as the maximum and the efficiency of the subcommittee has been judged--and the chairman of each subcommittee has prided himself on--the amount he was able to cut below the budget.<sup>2</sup>

House  
Subcommittee  
on Defense  
Appropriations

A similar attitude has influenced the House Subcommittee on Defense Appropriations which has been chaired since WWII by George Mahon of Texas.\*\* Under his leadership, the Defense Subcommittee has generally followed Chairman Cannon's rule and has moved, in Chairman Mahon's words, "to veto or diminish the budget requests as often as reasons deemed sufficient to do so could be found."<sup>3</sup>

In its quest to keep a check on the executive and protect the public's tax dollars, the Committee has been able to rely on the support of the House as a whole. As a recent study has shown, the Committee has enjoyed the support of the full House on almost 90 percent of its budgetary decisions without change.<sup>4</sup> Over the years, the general principle guiding the Appropriations Committee, and its many subcommittees is to approve funding of each executive department's previous year request, plus a little more for any new developments which can be justified to the satisfaction of the Committee.

Congressional  
Funding  
Emphasis

Thus, the House Appropriations Committee and its various subcommittees such as the one dealing with Naval appropriations are theoretically dealing with funding, and

\* Chairman from, 1941-47, 1949-53, 1955-1964.

\*\* George H. Mahon of Texas has chaired the House Subcommittee on Defense Appropriations since 1947, and succeeded Clarence Cannon in 1964 as Chairman of the parent Appropriations Committee. He still remains, however, chairman of the Subcommittee on Defense Appropriations, and an ex-officio member of every other appropriations subcommittee. He has announced his retirement effective in 1978.

*Congress and Antisubmarine Warfare*

not policy or strategy, or specific weapons systems. However, the members of the House Defense Subcommittee have adopted the role of being the guardians of national security in addition to their traditional role as the guardians of the public purse. In their report for the FY 72 defense appropriations, the Committee spelled out this philosophy:

The Committee on Appropriations continues in its strong belief that adequate military strength is the foundation of national survival and must be given the highest priority in the allocation of federal funds. . . .

Congressional oversight of defense spending plays an important role in national security in compelling the military services to channel their financing into the areas of highest priority.<sup>5</sup>

The House Appropriations Committee has also been one of the most stable of Congressional Committees in terms of membership. From the National Security Act of 1947 until the present, 1978, Chairman Mahon has presided over the Subcommittee on Defense Appropriations. Its long-term members include Robert Sikes of Florida, Daniel Flood of Pennsylvania, and Jamie Whitten of Mississippi. Former members included Melvin Laird of Wisconsin and Gerald Ford of Michigan. This is in contrast to the official witnesses from the Navy and the executive branch who have changed continually. These factors contribute to the Navy's approach to its budget requests since the committee and its personalities have become known.

*Committee  
Stability*

The other committee of importance to the Navy from a funding standpoint is the Senate Appropriations Committee. Before 1967, it was much more sympathetic to the budgetary positions of the requesting agencies such as the Navy, and in many instances it has functioned as a court of last appeal when the House has gone too far in cutting budget requests.

The Senate Appropriations Committee could, however, cut as well as restore, and sometimes has reduced DOD budgets below reductions recommended by the House. Since 1967, it has assumed the traditional role once exercised by

*Senate  
Appropriations  
Committee*

Nimitz'  
Experience

the House Appropriations Committee as the leading budget cutter.\* Before the 1960's, the DOD budget was the largest single component of governmental expenditure, and thus offered the most visible target for cutting executive spending for political and economic reasons, and is still the largest single appropriation which comes before Congress. After 1948, the success of the Navy before these two Committees was the final measure of whether it was winning or losing its peacetime contest for funding. It was very complex and political, as recalled by Commander Eugene B. Fluckey, personal aide to Fleet Admiral Chester W. Nimitz,\*\* who described a particular appearance of Admiral Nimitz before the House Appropriations Committee as being "absolutely magnificent". Commander Fluckey was shocked when the Admiral said, "Well, now we go back and start our cutback plan."

"What do you mean?", said Commander Fluckey, referring to the cutback plan. "They accepted everything. They offered you even more."

To which Admiral Nimitz replied, "No, the party line this year is out to cut, and cut they will. There they are reasonable while they're listening to you, but the minute you're away, they'll go back and adopt the party line. So now we'll go back and plan for the cuts."

Commander Fluckey concluded, "Three weeks later, in would come the cut, and we'd have the plan all prepared for it."<sup>6</sup>

The larger objectives of the administration and the mood of the nation as gauged by the Congress would always prevail.

\* In 1967, Chairman Richard B. Russell of Georgia (1951-53, 1955-71) of the Senate Appropriations Committee broke with the longstanding tradition that the Senate would not begin hearings on the Defense Appropriations bills until the House had concluded its hearings. Before 1967, the Senate Appropriations Committee had relied to a large extent on the work done in the House, but since then the Senate and House have held concurrent hearings, and the Senate has played a much more independent role in the appropriation process.

\*\* Chief of Naval Operations (CNO) from 15 December 1945 to 15 December 1947.

*Congress and Antisubmarine Warfare***I. Growing Congressional Concern, 1945-1955**

The basic issue facing the Congress and Navy at the close of World War II revolved around the size and mission of the postwar Navy. Naval air power in particular had made significant strides, as summarized in April 1945 by Fleet Admiral Ernest J. King:\*

*The Postwar  
Navy -  
Adm. E.J. King*

In all wars, the Navy's strategy and tactics have revolved around those weapon-bearers that hit hardest and farthest. Our fleet's adaptation of the airplane to sea warfare may be rated as one of the major military achievements of our age. The air arm of the United States Navy is the envy of other navies throughout the world. By utilizing air, our fleet has been able to make long advances, instead of having to doggedly batter the enemy mile by mile. Without our highly developed and closely integrated air arm, we would, in all probability, still be operating in Allied territory today. Particularly this is true in the Pacific where distances count for so much.<sup>7</sup>

In his 1945 testimony before what was then called the Naval Panel of the House Appropriations Committee, Admiral F.J. Horne, Vice Chief of Naval Operations, summarized the Navy's growth during the war:

*Admiral  
F.J. Horne*

On December 31, 1944, there were 3,870,039 officers and men in the United States Navy. That is about the number of people there are living in Switzerland today, and 31 times as many as were in the Navy 6 years ago. On the same day there were on the Navy list, excluding district craft and including landing craft of all types, 37,184 ships. That is about twice as many ships, of 100 gross tons and over, as there were in the combined merchant fleets of every country of the world in 1939, and 95 times as many as were in the Navy 6 years ago. To support this great Naval Establishment the Navy moved an average, on each day of last year, 100,000 tons of freight of all kinds. That is the equivalent each day, of 16 Liberty ships. It has been estimated

\* CNO from 26 March 1942 to 15 December 1945.

Selected  
FY 1946 Budget  
(\$ Millions)

Total DOD Budget - 37,077 (combined services)

Bureau of Ships	1,292
Bureau of Ordnance	325
Bureau of Aeronautics	930
Total Navy budget	12,249

that one-quarter of the national industrial productive capacity is now being devoted to the support of the Navy.<sup>8</sup>

The Navy's last wartime budget in 1945 for FY 46, as finally approved by Congress, required \$23,719 million to support this establishment, although with the end of the war this was reduced to \$12,240 million. It was obvious to both Congress and the Navy that the size of the Navy would have to be considerably reduced from this level. In addition, both the Navy and the House Naval Affairs Committee were concerned about the unification plans being considered by the Military Affairs Committee in the Senate. If a single service plan was adopted, the Navy might lose both its air and land arms unless its position vis-a-vis the other services were clearly spelled out. This was the issue which Representative Carl Vinson of Georgia, Chairman of the House Naval Affairs Committee,\* addressed on 29 October 1945 when he introduced House Concurrent Resolution 80. This non-statutory resolution was to serve as a guide to the Navy Department on the size, composition and mission of the postwar Navy. Although it was not a guarantee of funding, it was designed to give the Navy Department the "sense of Congress" in order for it to plan for an orderly demobilization. Chairman Vinson hoped to prevent too rapid a disarmament as had been the case after World War I. The mission of the postwar Navy as expressed by the House Armed Services Committee was:

. . . To control the sea and the air above it, and to keep the enemy as far away from our shores as possible. The resolution provides a postwar plan for first, ships; second, aircraft; third, bases; and fourth, facilities. It is a blueprint in detail. . . . The committee is asking Congress to subscribe to that blueprint by passing this concurrent resolution. (C.R., 29 October 1945, p. 10152.)

In order to carry out this mission, the resolution suggested a fleet composed of 297 combat ships and 1,375

\* Chairman, Armed Services Committee, 1949-1953, 1955-1965

Carl Vinson  
and House  
Concurrent  
Resolution 80

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auxiliaries, with 1,023 carrier-based airplanes. The ready reserve would be composed of a total of 2,313 combatant and auxiliary ships, with 2,099 in the laid up reserve. (C.R., 29 October 1945, p. 10152.) Of the 297 active warships, no less than 20 would be aircraft carriers of various sizes. The resolution left no doubt about the primacy of sea-based air in the postwar fleet:

Let there be no mistake about the role of air power and carriers in the proposed postwar Navy. The fleet will be built around the carrier, for one of the main functions of the other combatant vessels will be to protect the carrier. . . . The aircraft strength will be around 12,000 planes with about 8,000 of them in full active-duty status. (C.R., 29 October 1945, p. 10153.)

These carriers will bristle with about 5,400 planes when called to full force in emergency. About 17,259 aviators will be required. (C.R., 29 October 1945, p. 10153.)

According to the resolution, this fleet would require 500,000 personnel, and it would cost \$3,525 million per year. It passed the House by a vote of 347-0.<sup>9</sup>

Total DOD Budget - 14,304 (combined services)		Selected FY 1947 Budget (\$ Millions)
Bureau of Ships	444	
Bureau of Ordnance	244	
Bureau of Aeronautics	781	
Total Navy budget	4,287	

In the appropriation hearings held in 1946 for FY 47, the Navy Department requested a total of \$3,765 million from Congress (one eighth of the FY 46 request) to finance what was termed, "Postwar Plan 2." In addition, by the end of FY 47 the Navy was to reduce its total number of personnel from 950,000 to 437,000. The ships retained in Plan 2 would total 291 combatant ships manned at between 70 to 80 percent with a reserve fleet totaling 42 ships, manned at 20 to 30 percent of their normal operating complements. This was 80 ships less than had been provided for by Chairman Vinson's resolution in 1945.

*FY 1947 and  
Postwar Plan 2*

With regard to antisubmarine warfare, Congress was told by Captain M.J. Lawrence, Assistant Chief, Office of Research and Inventions, that,

## Congress and Antisubmarine Warfare

Under the pressure of the German submarine campaign in the Atlantic, the Navy made rapid advances in antisubmarine materiel during the early part of the war. The successful solution of that problem and the end of the war should not, however, cause us to slacken our efforts in this field. This is particularly true since there is every prospect of a completely submersible submarine being developed which will render present detection gear and ordnance obsolete. As a result, the Navy must pioneer along quite radical scientific lines in order to deal with the submarine of the future which can proceed for weeks at a time completely submerged at speeds probably exceeding that of our present submarine vessels. (HACH, 79:2, 21 March 1946, p. 542.)

In addition, the Navy was unwilling to turn over part of its responsibilities for land-based ASW patrol to either the Army or the Air Force. The insistence of the Navy on retaining its land-based ASW patrol aircraft in particular was one of the factors which held up the unification of the three services and the establishment of the Department of Defense.<sup>10</sup>

The House Appropriations Committee in its report found that the overall budget submitted by the President for the operation of the Navy in FY 47, \$3,765 million, was "inadequate--not wholly inadequate, but insufficient in the mind of the committee, in some important particulars--to insure the type and size of a Navy that may be expected to meet any contingency reasonably foreseeable in the future." (HACR, 79:2, pp. 2-3.) Further increases such as an expanded Naval Reserve, and accelerated research and development, brought the final total to \$4,333 million in new obligational authority for FY 47, of which \$4,287 million was finally approved.

Selected  
FY 1948 Budget  
(\$ Millions)

Total DOD Budget - 12,163	
Bureau of Ships	320
Bureau of Ordnance	184
Bureau of Aeronautics	411
Total Navy budget	3,269

*Congress and Antisubmarine Warfare*

In 1947 the Navy, submitting its last budget before the formation of the Department of Defense, requested a total of \$3,513 million from Congress for FY 48. This was almost the same figure which was called for in H.R. 80. In addition to the usual stress on carrier based air power, ASW received greater emphasis with the establishment of the Office of Coordinator of Undersea Warfare (Op-31) under Rear Admiral C.W. Styer as announced by Admiral Nimitz:

*Admiral Nimitz  
on Creation of  
Op-31*

At the end of the hostilities in Europe it was discovered that the German Navy had succeeded in developing, but had been unable to put into service, a new type submarine against which our best antisubmarine measures would have been much less effective. This new design submarine embodies features enabling it to operate almost exclusively submerged at a greatly increased speed and operating depth. The U.S. Navy has succeeded in putting into operation the two captured submarines of this type allocated to us by the Potsdam agreement. The first evaluation of the capabilities of the Type XXI U-boat shows that it is harder to detect and kill than the older types and can be expected to sink many more ships if given the same target density on which to work. This knowledge is now available to the world, causing submarine and antisubmarine development to assume a new importance.

As a result, a Coordinator of Undersea Warfare was installed in my office (Op-31) to strengthen our submarine and antisubmarine effort and undersea warfare projects have been assigned high priority. In combining submarine and antisubmarine warfare under one head, the principle was recognized that in all major weapon development, weapon and countermeasure design and production must be coordinated lest these same weapons, turned against us, find us lacking in defense. (HACH, 80:1, 22 January 1947, p. 71.)

Vice Admiral A.W. Radford, Deputy Chief of Naval Operations (Air), expanded on the Navy's concern over the potential new submarine threat:

*Vice Admiral  
Radford,  
DCNO (Air)*

*Submarine threat  
signature**The Submarine  
Threat*

... The antisubmarine measures, which are being developed as a countermeasure (to the Type XXI submarine), place major reliance upon the coordinated effort of the antisubmarine task units composed of land and carrier-based antisubmarine aircraft, nonrigid airships and surface ships. We can be confident that submarine operations of serious proportions would be instituted against the United States at the onset of hostilities, and, in all probability, submarines would be placed in advantageous attack positions prior to the commencement of such hostilities. Unless the United States is prepared to accept a duplication of the dangerously high shipping losses which were experienced during the first several years of World Wars I and II, the Navy must be ready to initiate effective antisubmarine measures at the beginning of any emergency. (HACH, 80:1, 17 February 1947, p. 1348.)

*1947 -  
An ASW  
Helicopter  
Buy*

Originally, the FY 48 air ASW program had called for an increase of the carrier-based ASW air groups from two to four, the retention of 16 LTA craft, the contractual authority to purchase 53 land-based ASW patrol planes, and the purchase of 20 helicopters for preliminary testing as ASW platforms at a unit cost of \$262,825.

Rear Admiral Sallada, Chief of the Bureau of Aeronautics, testified that the Budget Office had stricken the \$78 million necessary for the procurement of 53 patrol aircraft (24 P4M's and 29 P2V's), which provoked no Congressional reaction. The only issue which sparked any substantive discussion was the purchase of 20 experimental helicopters for ASW, which led to debate over the relative merits of the helicopter versus the blimp:

MR. THOMAS: Admiral Sallada, here is something I have had in mind, looking at the matter from the layman's point of view. . . . I notice you are buying only 20 helicopters and are asking for a total appropriation of some \$5,200,000 and a unit cost of \$262,825. I remember this committee in 1940 went out to witness the demonstration of a model helicopter in line with a suggestion that the Navy give it some consideration . . . that maybe it would be the answer to the submarine searching problem

## Congress and Antisubmarine Warfare

because it can obviously get off the deck of a 300-foot cargo ship . . . and the cruising range at that time was perhaps about 100 miles and the top speed about 90 miles (per hour).

The Navy turned it down and so far as the committee knows has given very little consideration to this type of aircraft up to the present time when you are now asking for something over \$5,000,000. I am wondering just what are the future possibilities of the helicopter as compared with the blimp, which is slow moving and is about the only target that a blind man can hit and certainly a blind man can hit it.

How much money are you requesting this year for the purchase of new blimps? (HACH, 80:1, 18 February 1947, p. 1413.)

RADM Sallada's response was that the only funds for new LTA procurement were \$1.5 million for the development of a new prototype, and that the total budget for the LTA program came to only \$4.9 million. Then Representative Thomas quizzed RADM Sallada on why the Navy wanted to retain the LTA program at all, and why the Navy could not devote the roughly \$5 million to the development of the helicopter. This led to the following exchange:

MR. THOMAS: What can the blimp do that the helicopter cannot do in submarine warfare?

ADMIRAL SALLADA: It can do a lot of things, Mr. Thomas. It can cruise longer distances; it can cruise through instrument conditions; it can do everything really that the helicopter can do, and considerably better from the standpoint of performance. Of course, it is vulnerable.

MR. THOMAS: . . . but I feel that over a period of say, 10, 15 or 25 years that the blimp will be so dead that even the Navy will be thinking how foolish it was back in the year 1947.

Representative  
Thomas  
LTA Predication

ADMIRAL RADFORD: The helicopter, to my mind, has great possibilities. (HACH, 80:1, 18 February 1947, p. 1413.)

*Wartime  
Production  
versus  
Innovation*

Admirals Radford and Sallada went on to explain that in the years immediately before and during the war, the Navy was forced to concentrate its limited funds on proven aircraft systems. It had been necessary to tool up and produce large numbers of combat aircraft of known capability. Wartime aircraft R&D funds were concentrated on product improvement with little, if any, effort available for innovation. In the end, the Navy received its helicopters and continued to fund the LTA program at an austerity level.\*

There is little in the Navy's postwar testimony to show that there was any immediate Congressional concern over the submarine threat. The maintenance of sea control was then simply not an issue. The U.S. fleet, built around the aircraft carrier task group, was supreme, and there was a massive inventory of World War II weapons and materiel from which the Navy could draw in time of war. The Navy had no serious rivals at sea during the years from 1945 to 1950.

*The Effect  
of Declining  
Naval  
Appropriations*

After hearing this testimony, the House Appropriations Committee cut the Navy's request by roughly 10 percent, or \$377 million, which left the Navy with \$3,135 million for FY 48, and \$170 million for contract authorizations. This reduction, passed by the House without change, led to a reclama action before the Senate. In terms of sea-based airborne ASW, force levels would have to remain at three operational air groups regardless of the final budget.

One issue that did come up during these hearings was the Navy's responsibility for land-based ASW aircraft. At issue was the new P2V, funds for procurement of which had been denied by the Executive branch. Said Secretary Forrestal:

*Land-Based  
Air - Navy or  
Air Force*

(The P2V's) design and characteristics are the result of long study and development work by the Navy. Admiral Duncan, who is Deputy Chief of Naval Operations for Air, on Admiral Nimitz' staff, has reached an agreement

\* It is interesting to note that the first ASW helicopter squadron, HS-1, equipped with HSL helicopters, was commissioned at NAS Key West in October 1951. The LTA program came to an end on 31 August 1962 with the last flight of a Navy airship at NAS Lakehurst.<sup>11</sup>

UNCLASSIFIED

S-B-A  
ASW

*Congress and Antisubmarine Warfare*

with General Spaatz\* as to the assignment of this particular function (land-based airborne ASW). It was a controversial question of who would take over submarine patrol and reconnaissance from land.<sup>12</sup>

This issue was finally settled when the National Security Act (P.L. 80-253) was passed in July 1947, leaving this responsibility primarily with naval aviation.

The 1948 reclama was at least partially successful, and \$177 million was restored to the Navy budget by the Senate, including \$78 million for the ASW patrol planes. This left the Navy with an appropriation of \$3,312 million. In the end, the Navy received a final appropriation of \$3,269 million in the Conference Report for FY 48 (P.L. 80-202). This figure marked the low point for the postwar naval budgets.

*The Navy's  
Smallest  
Budget*

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Total DOD Budget - 13,571	
Bureau of Ships	423
Bureau of Ordnance	243
Bureau of Aeronautics	588
Office of Naval Research	44
Total Navy budget	3,662

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*Selected  
FY 1949 Budget  
(\$ Millions)*

In FY 49 Congress again reduced the Naval request, which was presented independently from the new DOD budget, from \$3,928 million to \$3,662 million. In a fundamental way, the Navy's position was made even more difficult by the tremendous materiel reserves which had built up during the final years of the war. In its report for FY 49, the House Appropriations Committee defined that problem:

The committee believes that it has an obligation to impress upon the country the fact that we are today operating a larger Naval Establishment than the current appropriations will support in normal times, due to the fact that the Navy is still living, in considerable part, on its wartime inventory. . . . In 1947 the actual cost of the Navy exceeded appropriations by 1.9 billion dollars; in 1948 the

\* General Carl Spaatz, USAF, first Chief of Staff, USAF, 26 September 1947 to 29 April 1948.

UNCLASSIFIED

excess of cost over appropriations was 1.2 billion dollars and it is estimated that in 1949 the excess will be 1.3 billion dollars. This is a matter of grave concern which the Congress should be prepared to consider in the near future. (HACR, 80:2, pp. 2-3)

*Selected  
FY 1950 Budget  
(\$ Millions)*

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Total DOD Budget - 15,438

Construction of ships	157
Construction of aircraft	523
Aircraft and facilities	512
Ordnance	219
Research & development	43
Total Navy budget	4,354

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*The First  
Combined  
DOD  
Budget*

The budget for FY 50 was the first combined Department of Defense budget submitted to Congress under the National Security Act of 1947 which included the naval appropriation. The Navy's budget was now screened and coordinated by the Joint Chiefs of Staff and the Secretary of Defense, as well as the Secretary of the Navy and the Budget Office.

These hearings show the Navy's growing concern about the Soviet submarine threat in its testimony before Congress. In contrast, the House Appropriations Committee later complained that it had "alerted" the Navy to this threat, and had "begged" the various CNO's during this period to do more about ASW.

Admiral Louis E. Denfeld, Chief of Naval Operations,\* outlined the ASW problem before the House Appropriations Committee in February 1949:

*Admiral  
Denfeld  
on ASW,  
1950*

I have mentioned the increased emphasis which we are placing during 1950 on antisubmarine warfare. The latest type of submarine, capable of high submerged speed and deep submergence, can be countered only by the employment of new equipment and techniques in the hands of highly trained antisubmarine warfare personnel. In addition to this type of training, it is essential that carrier aircraft,

\* CNO from 15 December 1947 to 2 November 1949.

*Congress and Antisubmarine Warfare*

patrol planes, and destroyer types be trained in antisubmarine warfare as teams. . . .  
(HACH, 81:1, 16 February 1949, p. 32.)

The sea-based airborne ASW forces were steadily growing from the three air groups of 1946. These were forces the Navy itself felt it required. The real constraint in their growth was the lack of funds. The budget for FY 50 demonstrates one of the basic reasons fiscal matters were the strongest basis for the Navy's relationship with Congress rather than hardware, missions, or strategy. This was particularly true during the stringent financial period prior to the Korean War.

The Navy's initial budget for FY 50, formulated in April 1948, totalled slightly more than \$10 billion, out of a total of \$30 billion for the combined services, more than double that of the previous year. The Joint Chiefs of Staff reduced this figure to roughly \$23 billion, the Navy portion becoming first \$8.2, then \$7.8 billion as it was further trimmed by the Director of Budget and Reports. At this point President Truman set a \$15 billion ceiling on the entire Department of Defense. The naval budget finally was reduced to \$4.6 billion under the new plan. However, there were further reductions until the final presidential request for the Navy was \$4,408 million, 40 percent of the original budget. In the process the Naval budget was screened no less than fourteen times before reaching Congress under the new system. In fact, the hearings held in 1949 were marked by a fierce battle between the Navy and the Air Force over their respective roles in strategic warfare. When Secretary of Defense Louis Johnson\* cancelled the 65,000 ton CVA (USS *United States*, CVA 58) which was to have been the core of the Navy's future atomic strike capability, the Navy responded with an attack on the Air Force's B-36 bomber program.\*\* In addition to the cancellation of the carrier in 1949, Congress cut the budgets of both the Army and Navy in order to give the Air Force \$800 million in additional funds to help finance the B-36

*Budget  
Problems  
Caused by  
DOD*

\* Secretary of Defense from 28 March 1949 to 19 September 1950.

\*\* The "revolt of the admirals" went back to the Key West Conference held in March 1948. In order to end the interservice rivalry over strategic roles between the Air Force and the Navy, a compromise was reached. The Navy was allowed to begin development of a 65,000-ton flush deck carrier capable of launching jet aircraft carrying atomic weapons; the Air Force would be left with the sole responsibility of developing a strategic air force. Authorized on 29 July 1948, CVA 58 was cancelled on 23 April 1949.

*The Revolt  
of the  
Admirals*

program. Many senior officers in the Navy viewed this as an attempt to strangle naval aviation. The CNO, Admiral Louis E. Denfeld, supported by Vice Admiral Gerald F. Bogan (COMFIRSTFLT) and Admiral Arthur W. Radford (CINCPACFLT), led the protest which eventually resulted in Admiral Denfeld's dismissal. This controversy led to the National Security Act of 1949, which gave the Secretary of Defense greater control over all three services.

Within these severe budgetary restrictions, the Navy continued to place emphasis on ASW, especially in terms of the assigned escort carriers and their embarked air groups:

I must stress that a higher rate of aircraft procurement than is now provided for in this budget--843--will be necessary in future years if we are to provide either the necessary support for our present operating aircraft or a suitable industrial platform for expansion in case of emergency. This deficiency in aircraft procurement has been accepted in this program as a calculated risk in order to avoid further unacceptable reductions in our operating ships; but unless corrected in the future, our combat readiness will decrease at an accelerated rate. (HACH, 81:1, 16 February 1949, p. 33.)

*RADM Momsen  
on the  
Submarine  
Threat*

The hearings held in 1949 are interesting in another way, because the testimony of Rear Admiral Charles B. Momsen, Assistant Chief of Naval Operations (Undersea Warfare Op-31),\* can be supplemented by a classified briefing given to Congress on 18 February 1949, dealing with the Navy's position on ASW:

. . . In the near future we expect that the submarine force of the Soviet navy will consist primarily of conventional World War II types, and therefore, our antisubmarine techniques with current improvements will be considered adequate to deal with these types.

. . . To combat the Soviet Russian submarine fleet we will employ our forces in the following manner: First, by means of mines laid by submarines and air we will attempt to

\* Office of Coordinator of Undersea Warfare (Op-31) was upgraded to an ACNO billet with the appointment of RADM Momsen on 25 June 1948.

*Congress and Antisubmarine Warfare*

block his . . . egress to the seas. . . . The geography of (the) USSR lends itself to this type of attack. Later, however, they may obtain bases with direct access to the sea. We will (then) attack his submarine bases, building yards, and other complexes using naval aircraft assisted by aircraft from the Air Force. By the use of surface escorts and air coverage we will protect our convoys from attack. Hunter-Killer groups consisting of light carriers with their air groups and destroyer types which were proven so successful in the past war, will be assigned to areas known to be infested by submarines. Aircraft are equipped with special types of radar capable of locating surfaced submarines with certainty and capable of locating snorkels with some lesser degree of success. They will carry depth bombs, rockets, and target seeking torpedoes as offensive weapons. . . .

*How the Navy  
Would Conduct  
ASW*

We refer to the future Soviet submarine fleet as one which will be composed of all or nearly all Type XXI submarines or better. To meet the threat of such a force it will be necessary for us to complete a number of projects which are now in various stages of development. . . . We have estimated that the period indicated as the future would commence about 1955 and that these new projects should be completed in all phases by that date. To meet this date the research work must be completed by 1 January 1953. . . .

In conclusion I would like to state that with the combination of our scientific capabilities, our vast industrial capacity, and the development of these projects now contemplated we feel that if and when this future Soviet submarine force comes into being that we will have the techniques available for dealing with it. Without continued support and continued high priority emphasis, however, the threat could become very serious.<sup>13</sup>

In spite of this testimony, the House Appropriations Committee cut a further \$33 million from the President's budget, leaving the Navy with a recommended appropriation

*Cuts  
Nevertheless*

## Congress and Antisubmarine Warfare

of \$4,375 million, the Navy finally receiving \$4,354 million. Thus, Congress eventually passed a Navy budget some \$15.7 million less than what the President had originally requested.

During the hearings held in 1950 for FY 51, Congress expressed its first real concern over the Soviet submarine threat. The new Chief of Naval Operations, Forrest P. Sherman\* presented a budget request for FY 51 of \$3,881 million which contained \$475 million for new fighter and patrol aircraft which were urgently needed to replace the obsolescent World War II inventory. Nevertheless, overall, it provided for a much reduced air arm with only 4,389 active Navy and Marine Corps aircraft.

Selected  
FY 1951 Budget  
(\$ Millions)

Total DOD Budget - 49,607	
Ships and facilities	1,568
Construction of ships	747
Construction of aircraft	2,877
Aircraft and facilities	935
Ordnance & facilities	1,547
Research & development	82
Total Navy budget	12,982

Congressional  
Concern  
About ASW

During testimony on the 1951 bill in March 1950, just before the outbreak of the Korean War, Representative Mahon asked for assurance: "that this budget adequately takes into consideration the absolutely urgent need that we should be prepared . . . to meet the submarine menace." The CNO, Admiral Sherman, replied:

I believe the forces we plan to maintain in the fiscal year 1951 are the best balanced that can be achieved within the money ceiling which controlled the preparation of the plan. I would be less candid if I did not indicate to you that a reduction of 30 patrol-plane squadrons to 20, and from 170 destroyers to 140, decreases the means available to the Chief of Naval Operations to meet his responsibilities for the naval defense of the country.

\* Admiral Sherman, replaced Admiral Denfeld upon his forced departure during the B-36 controversy. Admiral Sherman was to serve as CNO from 2 November 1949 to 22 July 1951.

*Congress and Antisubmarine Warfare*

In other words, while I support this as being the best program available to us, it is far from providing in the Navy completely adequate means for combating a submarine threat. (HACH, 81:2, 20 February 1950, p. 1740)

Chairman Mahon then asked whether the Navy was giving ASW sufficient emphasis, to which ADM Sherman replied:

The development of increased readiness for antisubmarine warfare has the highest priority in the Navy. It has the highest priority in our naval research and development programs and the highest priority in the allocation of ships, aircraft, and personnel, and we are giving it all the attention we can with the means available. . . . The antisubmarine warfare program comes first. Of course, in integrating individual projects, we do not assign all the antisubmarine warfare projects before we take any of those that have to do with air defense or offense, but in general antisubmarine warfare has the highest priority and projects for improving our antisubmarine warfare capabilities average higher priority than any other programs.

*Admiral Sherman  
and  
Chairman Mahon*

MR. MAHON: Are you reasonably satisfied, Admiral Sherman, that within the limitation of the budget you are placing sufficient emphasis on antisubmarine warfare?

ADMIRAL SHERMAN: Very definitely, yes. (HACH, 81:2, 20 February 1950, p. 1741.)

However, Admiral Sherman emphasized before the House Armed Services Committee that ASW was not the Navy's only mission. In addition:

The Navy has to be prepared to attack coastal targets, to give support to the Army, and amphibious operations are not entirely a thing of the past in my judgment, and we do have to take cognizance of the Navy of the great power which confronts us. That Navy includes a cruiser force, a destroyer force, a large amphibious flotilla and a naval air force.

. . . The American Navy is, I believe, now a pretty well-balanced organization, but in the conduct of operations at sea, even though it may not get into a fight day by day, there must always be an element of offensive power. In the days of sail, it was the ships of the line. In World War I, it was the battle fleet. In World War II, it was the heavy carrier task force. It is the core of our offensive power and it is the element which prevents any other concentrated unit from interrupting our routine operations.<sup>14</sup>

Admiral Sherman continued to press the Navy view that the submarine menace should be struck in its home waters: "the most effective operations in the submarine warfare of World War II had to do with taking the offensive against submarines, saturating the Bay of Biscay, for instance, rather than trying to defeat them off New York." Thus, the aircraft carrier was a key element in ASW.

The Korean  
War and  
Naval  
Funding

These discussions, however, were overshadowed by the North Korean invasion of South Korea on 25 June 1950. As a result, Navy funding jumped from less than \$4 billion to more than \$12 billion in FY 51.

Selected  
FY 1952 Budget  
(\$ Millions)

Total DOD Budget - 62,719

	NAVY	ASW
Shipbuilding and conversion	1,343	419,000
Ships and facilities	1,539	-
Construction of ships	21	-
Aircraft and facilities	934	-
Construction of aircraft	3,883	-
Ordnance & facilities	1,820	-
Research & development	72	100,400
(CAESAR)	-	8,900
Total budget	16,359*	528,800**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

The President's budget in FY 52 requested \$15,746 million, the Navy actually receiving \$16,359 million. In the hearings held in 1952 for FY 53, both the Executive branch and Congress began to slow the pace of the military

*Congress and Antisubmarine Warfare*

buildup that had begun in 1950. As the Korean War stabilized the original Navy budget request of \$13,822 million, with the truce negotiations in progress, was finally reduced to \$12,843 million from Congress. This, however, did include contractual authority to begin construction of the Navy's second large carrier, the first of the FORRESTAL (CVA 59) class.

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Total DOD Budget - 47,093

Selected  
FY 1953 Budget  
(\$ Millions)

	NAVY	ASW
Shipbuilding and conversion	512	214,500
Ships and facilities	1,059	-
Construction of ships	52	-
Aircraft and facilities	943	-
Aircraft procurement	3,450	-
Ordnance & facilities	964	
Research & development	70	115,400
(CAESAR)	-	27,600
Total budget	12,843*	357,500**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

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In his testimony, the new CNO, Admiral William M. Fechteler\* expressed a stronger concern than his immediate predecessors about the Soviet submarine threat. While he acknowledged the active Soviet cruiser building program then underway, he expressed his concern over the Soviet submarine threat to the sea lines of communication:

Admiral  
Fechteler  
and the  
Submarine  
Threat

Lack of proper escort forces in World War II resulted in losses as high as 90 percent on routes leading close to enemy shores. To prevent the delivery of these supplies the Soviets have a submarine force numerically nearly equal to that employed by the German Navy at the height of their submarine campaign. Many of these submarines are of advanced design which render them a potentially greater threat than any previously encountered. This submarine threat is constantly being augmented by new construction, improved weapons and by the

\* Admiral William M. Fechteler, Chief of Naval Operations, 16 August 1951 to 17 August 1953.

production of surface types capable of commerce raiding. (HACH, 82:2:1, 11 February 1952, p. 13.)

Representative  
Scrivner and  
VADM Cassidy  
(DCNO (Air))

Since the Korean conflict was winding down, Congress expressed concern over the Navy's size and its lack of naval adversaries. After Admiral Fechteler had conceded no world navy or combination of navies was equal to that of the U.S., Representative Scrivner questioned Soviet submarine advances and the U.S. response to them. With regard to the latter, Vice Admiral John H. Cassidy, DCNO (Air), reviewed airborne ASW progress:

New ASW  
Aircraft

Against the submarine, our defense is steadily improving. This has stemmed largely from electronics developments. Aircraftwise, the problem has been how to house and carry the electronic equipments to best advantage. Our patrol ASW airplane program is going steadily ahead, replacing outmoded World War II land and seaplane models. In carrier ASW, we are counting heavily on the Grumman twin-engine S2F--the first airplane in the world designed from scratch for the carrier ASW mission. Deliveries will begin late this year (1952). Also we are buying the Bell HSL, the first helicopter ever designed for ASW. It will be able to base on either a small carrier, a cruiser, or other ships of medium size. Deliveries will begin this fall. (HACH, 82:2:1, 27 February 1952, p. 507.)

Actually, the S2F came in the fall of 1953 and the Bell HSL was cancelled, being replaced by the Sikorsky HO4S helicopter.

Post-Korean  
Congressional  
Attitudes

Congress and the Republican administration of President Eisenhower returned to a moderate emphasis on economy in government, with an austere view of the military. The Budget Office had originally allocated the Navy \$11.5 billion for FY 54, but with the end of the Korean War in sight, that had been progressively reduced to a finally approved \$9,585 billion. This sum was still three times larger than during the pre-Korean period. The House Appropriations Committee Report for FY 54 philosophized about the budget problem:

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S-B | A  
ASW

*Congress and Antisubmarine Warfare*

Total DOD Budget - 32,700

*Selected  
FY 1954 Budget  
(\$ Millions)*

	NAVY	ASW
Shipbuilding and conversion	720	126,200
Ships and facilities	878	-
Construction of ships	57	-
Aircraft and facilities	943	-
Aircraft procurement	1,379	66,500
Ordnance & facilities	814	71,900
Research & development	59	108,200
(CAESAR)	-	7,800
(Electronics)	-	5,000
Total budget	9,585*	385,600**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

It is altogether unreasonable to believe that this or any other nation can in this atomic age provide for 100 percent insurance for its protection against the disaster of an attack. It must be borne in mind that our strength is both military and economic. We must strive to balance minimum defense needs against dangers of unbearable burdens on the economy. We must listen to our military leaders as they present the military needs. On the other hand, our civilian leaders are presumed to have better information on what the nation can afford—not so much in terms of dollars but in terms of the extent of continuing drains on the Nation's economy. Furthermore, our civilian leaders are the ones to determine the financial requirements for given force and materiel goals. All have one objective—the security of the nation. (HACR, 83:1, pp. 3-4.)

During 1954 and 1955, the House Appropriations Committee and the Senate Appropriations Committee expressed concern over the growing dimensions of the submarine threat. On 17 January 1955, the USS *Nautilus* (SSN 571) revolutionized naval warfare with the message, "Underway on nuclear power." Moreover, in November of the same year, the Special Projects Office was established to develop the Fleet Ballistic Missile System. These dramatic advances in

*Congress and  
Missile-  
Launching  
Submarines*

UNCLASSIFIED

submarine potential played a significant part in the congressional attitude toward ASW. Influential congressmen began to voice an increasing concern about the Navy's capability to counter similar submarines which might be developed by the Soviet Union. Two things had happened. The true submersible that Admiral Doenitz had almost attained became a reality. Secondly, the lay impression of submarine warfare--the classic convoy battles fought in mid-Atlantic--was changed. Now the possibility of submarine launched nuclear missiles threatened the American continent. The Navy was again urged to devote more of its diminishing appropriations to ASW. In a Senate Appropriation Committee hearing which took place on 18 June 1953, Senator Saltonstall questioned this new threat:

If an enemy submarine was to make a surprise attack on our coast with missiles fired at 200 miles at sea tomorrow, would we know anything about it until the missile hit?

Senator  
Ferguson  
and Admiral  
Good

ADMIRAL GOOD:\* You can never be 100 percent ready for a thing like that in peacetime.

SENATOR FERGUSON: . . . 200 submarines capable of launching 200 guided missiles with atomic warheads could certainly do great damage to America and her facilities and manpower. Is that not true?

ADMIRAL GOOD: As I understand your question, sir, the answer to it would have to be yes, that 200 atomic warheaded missiles launched from 200 submarines as a complete surprise would certainly create a lot of damage whatever the target was. . . . I would not myself give the Russians credit for a capability anywhere approaching 200 submarines on station equipped with guided missiles on D-day.

SENATOR SALTONSTALL: But they have probably a certain proportion of that. . . .

ADMIRAL GOOD: We know they have submarines, sir; we know that they have exploded an atomic bomb. Whether they do in fact have

\* Vice Admiral Roscoe P. Good, DCMO (Logistics).

*Congress and Antisubmarine Warfare*

the capability of delivering the bomb from a submarine, I do not personally know, sir. . . . Given the bomb and the submarine, I think it is quite probable they would put the two together. (SACH, 83:1:1, 18 June 1953, pp. 1094-1095.)

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Total DOD Budget - 35,612

*Selected  
FY 1955 Budget  
(\$ Millions)*

	NAVY	ASW
Shipbuilding and conversion	1,042	354,500
Ships and facilities	786	-
Construction of ships	58	-
Aircraft and facilities	776	-
Aircraft procurement	1,974	161,400
Ordnance & facilities	491	52,600
Research & development	433	97,400
(CAESAR)	-	41,500
(Electronics)	-	2,500
Total budget	10,221*	709,900**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

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In the hearings held in 1954, the Navy stressed the importance of ASW, but only as an element in the primary mission of sea control. Chairman Mahon quizzed the new CNO, Admiral Robert B. Carney,\* at length about the importance the Navy attached to ASW:

*Admiral Carney  
on ASW and  
Sea Control*

MR. MAHON: In my opinion (ASW) is just about the most important, or the No. 2 or No. 3 (task the Navy has). I do not see how you could maintain that it is not perhaps the greatest urgency of all. If you can keep the sea-lanes open; you cannot lose a war, perhaps.

*Mr. Mahon:  
ASW  
Importance*

ADMIRAL CARNEY: The only way you can keep the sealanes open is to prevent the enemy from stopping them. That calls for both defensive and offensive operations. The offensive operation is certainly preferred when you can take the initiative and use it.

\* Chief of Naval Operations, 17 August 1953 to 17 August 1955.

Mr. Mahon: Certainly we could not afford to not devote the maximum of personnel and money to the defeat of the enemy submarines that might be used against us. We know of the peril we have suffered in previous years. I do not believe that there is anyone in or out of Congress who has thought about this at all who would want to pull any punches or fail to ask for any necessary funds for the maximum implementation of the antisubmarine program. (HACH, 83:2, 9 February 1954, pp. 47-48.)

During the period from 1950 to 1955, according to its testimony, the Navy was devoting an increasing number of its personnel, ships, aircraft, and resources to ASW. In the hearings which took place in 1955, Admiral Carney tried to clarify the relationship of ASW to the overall mission of sea control:

Admiral Carney  
Continues

The purpose of the United States Navy is to fulfill its part in providing for the security of the United States and to support our national policy throughout the world. The primary means by which the Navy does this is by gaining and maintaining command of the seas, to use the seas for our own purposes and that of our allies, and in time of war, to deny use of these seas to an enemy. In order to maintain our control of the seas, we must have the ability to defeat any threat to that control. The most significant of these threats are enemy air, submarine, and surface forces. . . .

X In the case of enemy submarines the term "antisubmarine warfare" is a generic term covering submarine countermeasures and in general is divided into:

The Navy's  
Plan of  
Attack

(1) Formation of convoys and their routing to avoid submarine concentrations.

(2) Local defense of the convoy.

(3) Hunter-killer operations against known or suspected submarine concentrations. These are independent offensive operations by surface and air teams, the latter generally carrier based.

## Congress and Antisubmarine Warfare

(4) By far the most effective and, in the long run, the least expensive antisubmarine measure is attack against the submarine at its base pens, and refitting facilities. These are primary targets for carrier striking forces. (HACH, 84:1, 9 March 1955, pp. 175-176.)

The key to keeping control of the seas, Admiral Carney argued, was the aircraft carrier, especially in terms of the submarine threat:

The carrier is one naval vessel usable alternately or simultaneously against submarines and their bases, surface ships and their yards, aircraft and their airfields, and for support of amphibious, land and air operations as well. (HACH, 83:2, 9 February 1954, p. 179.)

Total DOD Budget - 40,447

	NAVY	ASW	Selected FY 1956 Budget (\$ Millions)
Shipbuilding and conversion	1,388	984	
Ships and facilities	765	-	
Aircraft and facilities	806	-	
Aircraft procurement	906	81	
Ordnance & facilities	186	60	
Research & development	474	135	
(CAESAR)	-	40	
(Electronics)	-	44	
Total budget	9,648*	1,344**	

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

Amplifying on the Navy's basic plans in any future war, Admiral Carney stated:

. . . First, attack on (the Soviet) bases, supplemented by mining of their routes of egress. Second, specialized Hunter-Killer units will seek them out and destroy them en route to our carrier operating areas. Third, the movement of the carrier force will make it hard for the submarines to get in position for attack. Finally, against those submarines

Admiral Carney  
on Sea-Based  
Airborne ASW

which may be able to get into position we are developing considerably improved means of detection, and improved means of destruction, both conventional and nuclear. (HACH, 83:2, 9 February 1954, p. 179.)

The Soviet Navy  
and U.S.  
Modernization

This all supported the fact that the Forrestal class of aircraft carrier was now under construction at the rate of one every year. The World War II Essex class were becoming antisubmarine carriers (CVS) as a result. But against this optimism the Admiral did try to present a balanced picture of the total threat posed by the Russians and testified that the U.S. lead over the Soviet Navy was narrowing, and more importantly that the policy of forcing the Navy to live with its World War II-built ships raised the specter of "block obsolescence" in the future:

The differential between the Soviet Navy and ours is closing. The measure of our superiority is decreasing. That is true because they are engaged in a very ambitious and extensive building program for cruisers, destroyers, and submarines. . . .

We, on the other hand, have been mostly modernizing. As I mentioned in my prepared statement, most of the ships in the fleet are at about their half life today. In order to prevent this thing of block obsolescence overtaking us all of a sudden, having a large number of ships suddenly become overage and obsolete, a steady building program or replacement program is necessary. (HACH, 84:1, 9 March 1955, p. 138.)

## II. The Soviet Submarine Threat and Reorganization, 1956-1965

The period 1956-1965 brought about a new emphasis in the dialogue between Congress and the Navy over ASW. Previously, the debate centered around reduced funding in a period of austerity, and warnings from the Navy regarding increased Soviet submarine construction.\* 1956 introduced

\* In 1956, the Soviet Navy's submarine construction programs hit their peak of annual production. Conventional submarines of six classes (Whiskey, Zulu, Quebec, Foxtrot, Romeo & Golf) were being produced at a rate of forty-six per year. Of these, the Golf class and a variant of the Zulu class (Zulu V) were armed with ballistic missiles carrying nuclear warheads. In addition, construction began in 1956 of the first nuclear propelled attack submarines of the November class.

## Congress and Antisubmarine Warfare

a new element: the potential of new Soviet submarines armed with missiles and run by nuclear power, and the ability of the Navy to counter this threat. Other issues revolved around the Navy and Congressional perception of just how to meet such a threat. While money continued to be the most important topic in naval appropriations hearings, it was matched by a growing Congressional concern that the Navy did not place enough emphasis on ASW.

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Total DOD Budget - 41,849

Selected  
FY 1957 Budget  
(\$ Millions)

	NAVY	ASW
Shipbuilding and conversion	1,479	954
Ships and facilities	766	-
Aircraft and facilities	811	-
Aircraft and related proc.	1,733	145
Electronics procurement	-	10
Proc. of ordnance and ammo.	294	59
RDT&E	529	126
Total budget	10,220*	1,329**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

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In testimony before the House Appropriations Committee in 1956, Chief of Naval Operations Admiral Arleigh C. Burke\* presented the threat:

Admiral Burke  
on the  
Threat

. . . The Soviet naval buildup is the most significant development in the Soviet grand strategy since World War II. Soviet naval leaders have recognized and accepted war-proven naval doctrines of both the German and allied navies. Soviet recognition of the increased importance of control of the seas in world strategy is no longer open to question. (HACH, 84:2, 6 February 1956, p. 652.)

. . . The Soviets' underseas force right now consists of over 400 submarines. . . . Their submarine building program is still accelerating. New snorkel-equipped units have the latest technological advances, including

\* CNO from 17 August 1955 to 1 August 1961.

long endurance, higher submerged speed, and improved weapons, detection, and communication gear. They can operate thousands of miles from their home bases and are capable of sustained operations off the coasts of the United States. (HACH, 84:2, 6 February 1956, p. 651.)

Congress, especially certain members of the House Appropriations Committee, was concerned about the capability of the current ASW forces to counter the modern Soviet submarine:

MR. SIKES: It is true, is it not, that if war were to come tomorrow we would find it very difficult to meet the submarine menace with present equipment?

ADMIRAL BURKE: Yes, sir. (HACH, 84:2, 6 February 1956, p. 692.)

Although there was some reduction in the FY 57 Navy request of \$10.048 billion, of which \$1,329 million was to be devoted to ASW, this year marked the end of the steady decline in Navy funding since the Korean War. The Navy budget now proceeded to climb until 1965, when the Vietnam war impacted the budget process. From 1956 to 1965 the Navy received substantially what the Executive branch requested from Congress.

Selected  
FY 1958 Budget  
(\$ Millions)

Total DOD Budget - 43,074

	NAVY	ASW
Shipbuilding and conversion	1,880	628
Ships and facilities	821	-
Aircraft and facilities	846	-
Aircraft and related proc.	1,837	116
Electronics procurement	-	4
Proc. of ordnance and ammo.	208	46
RDT&E	573	128
Total budget	10,506*	946**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

During the Congressional hearings in 1957 the Navy continued to warn Congress about the growing Soviet sub-

*Congress and Antisubmarine Warfare*

marine menace. Rear Admiral F.B. Warder ACNO (Undersea Warfare) (Op-31) summarized the threat:

*Admiral Warder  
and Threat  
Specifics*

The question naturally arises as to how many submarines the Soviets will build. . . . Admiral Kuznetsov (former Soviet Commander in Chief) stated in 1948 that the Soviet goal in submarines was:

Older training boats	250
New medium-range boats	250
New long-range boats	700
Total	1,200

. . . Nuclear propulsion changes a submarine's character from that of a surface ship capable of brief periods of submergence to what is in fact a true submarine--one completely divorced from the atmosphere and capable of indefinite submergence at high speed. However, the full advantage of the nuclear powered submarine cannot be expressed in terms of speed and endurance only. The most significant military advantage is that a submarine can now operate for unrestricted periods below the zone of most probable detection.

*Nuclear  
Propulsion*

The meaning of this is plain. Antisubmarine warfare has heretofore been based on one premise: that the submerged submarine is powered by a storage battery that must soon exhaust itself, very quickly at high speeds, and in a matter of hours at the lowest speed. Destroy that premise, as nuclear power is doing, and this matter of hunting and destroying submarines becomes much more difficult. . . . (HACH, 85:1, 28 March 1957, p. 98-100.)

Admiral Burke in his FY 1957 testimony emphasized the importance of the carrier strike force in attacking the submarine bases: "The nuclear striking power of our attack aircraft carriers is, of course, the spearhead of our offensive antisubmarine warfare effort today." (HACH, 85:1, 11 February 1957, p. 759.) In presenting the budget for FY 58, Admiral Burke placed the highest priority on the procurement of a nuclear attack carrier, the most expensive ship the Navy had ever requested. Ultimately this would be *Enterprise* (CVAN 65).

*Admiral Burke  
on the CVA  
and ASW*

## Congress and Antisubmarine Warfare

Of the \$10,487 million the Navy requested, \$1,654 million was for shipbuilding and conversion. The House Appropriations Committee increased funding for this category by \$54.3 million, with the following justification:

New ASW  
Shipbuilding

Ships in this program approved by this bill will greatly improve the antisubmarine warfare capability of our Navy. Practically every ship in this program will have a strong antisubmarine capability. . . . All of these combatant ships will have guided missile capabilities. (HACR, 85:2, p. 55.)

The new ships mentioned included a new attack carrier, five DDGs, and four SSN. Conversions to be funded included four ocean escorts to radar picket ships.

Thus, in the opinion of Congress, the increased procurement of ships, and the attendant increase in the Navy budget, was generally tied to the belief that it was directly related to increasing the Navy's ASW capability. The Navy eventually received the \$10,487 million requested in FY 58, \$300 million more than the previous year. On the other hand, the ASW portion of the final budget dropped from the previous year's \$1,329 million to \$946 million. The largest decrease was in shipbuilding, which was reduced by two thirds, and aircraft and related procurement were also cut, while research and development increased slightly.

Selected  
FY 1959 Budget  
(\$ Millions)

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Total DOD Budget - 43,709

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	NAVY	ASW
Shipbuilding and conversion	2,069	1,013
Ships and facilities	780	-
Aircraft and facilities	838	-
Aircraft and related proc.	2,034	351
Electronics procurement	-	17
Proc. of ordnance and ammo.	603	56
RDT&E	870	203
Total budget	11,820*	1,676**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

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The hearings which were held in 1958 occurred against the background of a growing Congressional disquiet over the

*Congress and Antisubmarine Warfare*

adequacy of the Eisenhower defense program. The "new look" for national security put forward by the Eisenhower administration was based on massive nuclear retaliation to deter Soviet aggression. There had been a continuous attempt since 1953 to scale down the level of defense spending through a reduction in conventional forces. While the Air Force had benefited most from this defense strategy, none of the service chiefs had been satisfied with their respective budget allocations. Moreover, the successful launch of Sputnik on 4 October 1957 called much of this strategy into question, and it sparked a heated controversy between the armed services, the Executive, and Congress over military priorities and defense spending.

*The Adequacy  
of the  
Eisenhower  
Program  
Questioned*

In the years after 1953, the Navy had continued to lobby both the administration and Congress for an accelerated FORRESTAL class carrier building program. Not only was the attack carrier presented in naval testimony as being one of the best platforms for strategic weapons delivery, it was a critical component of all naval missions, including ASW. In addition, during the 1958 hearings, the Navy was still trying to preserve its control over naval aviation in the face of another military reorganization plan put forward by the Executive branch.\* ASW began to take on more importance in the Congressional budget hearings.

A major reason for the growing concern on the part of Congress over the Soviet submarine threat can be traced to testimony by Rear Admiral Hyman G. Rickover (Assistant Chief for Nuclear Propulsion, Bureau of Ships):

*Admiral  
Rickover's  
Inputs*

We know that they (the Soviets) have operational missiles which are good for at least 200 miles and probably more. I would

\* In response to the Soviet ballistic missile program, and the increasing level of defense spending, the Eisenhower administration put forward another reorganization plan for the Department of Defense in April 1954. In a move to lessen interservice rivalry and increase efficiency, a reorganization bill was submitted to Congress that empowered the Secretary of Defense to alter the missions assigned to the three services. This was opposed by the Navy, and in hearings held before the Senate Armed Services Committee Admiral Burke's testimony was decisive in insuring the passage of a House amendment to the President's reorganization bill which would make Congressional approval necessary for any major changes in the service missions. The final reorganization bill (P.L. 85-599), by giving legal recognition to naval aviation, prevented any future attempt by the Executive branch to alter the Navy's basic missions without congressional approval. This effectively insured the future of sea-based air.

anticipate that in the not too distant future they will have operational missiles with a range of about 600 to 700 miles. Therefore, with a large number of submarines that can carry missiles fitted with atomic or hydrogen warheads, they have the capacity to operate off our coasts and destroy our cities. . . . (This) is the gravest immediate threat that faces the United States. (HACR, 85:2, p. 44.)

In the same hearing, Admiral Burke commented on the Navy's ASW capabilities as the Soviet submarine fleet converted to nuclear power:

U.S. ASW  
Against the  
Conventional  
Threat

We believe we have the technique and capability now for defeating Soviet conventional-powered submarines, even though this task is most difficult. We are much more concerned about retaining our capability to handle the submarine threat when the Soviets possess the true submersible--the nuclear-powered submarine. (HACR, 85:2, p. 44.)

X In order to combat this menace, the House Appropriations Committee increased the shipbuilding and conversion budget for FY 59 to provide for construction of twenty-three ships and the conversion of seven others, all related to ASW. According to the Committee's report:

The vessels approved by the Committee will greatly improve the antisubmarine warfare capacity of our Navy. Virtually every ship in this program will have some antisubmarine capability. For example, the twelve guided missile frigates and destroyers are primarily antisubmarine warfare vessels. The surface ships, as well as the submarines, contained in this program have greatly improved submarine detection and destruction equipment. The two heavy cruisers being converted will have long range sonar and antisubmarine weapons.\* (HACR, 85:2, p. 54.)

There was no separate breakdown of appropriations for sea-based airborne programs, but aircraft and related

\* It is worth noting that at least twelve of these ships (five DDGs and seven DLGs) would not now be considered as primarily ASW platforms.

## Congress and Antisubmarine Warfare

procurement was one of the few areas where Congress reduced the Navy's \$2,093 million request by \$145.5 million, although the Senate Appropriations Committee restored \$133 million, resulting in a net reduction of \$9.2 million. This was, however, \$243 million more than the Navy had received the previous year, and again this increase was tied to the Congressional concern over the overall ASW capability of the Navy:

The new aircraft contemplated in this program include an advanced carrier based aircraft in the airborne early warning field, carrier based attack planes, as well as troop and cargo transport helicopters for use in the Marine vertical envelopment operation. Also funded is an improved version of existing anti-submarine patrol aircraft, continued improvement of a turbo-powered antisubmarine helicopter and the S2F antisubmarine aircraft. These are needed to improve the capability of the antisubmarine squadrons. (HACR, 85:2, p. 52.)

The ElB  
Aircraft  
and the  
SH-3A

The final ASW budget totalled \$1,676 million, 77 percent above the previous year. ASW shipbuilding came to \$1,013 million, nearly half of the overall Navy budget of \$2.069 billion shipbuilding budget, and larger than the entire ASW budget of the year before.

Total DOD Budget - 41,622

	NAVY	ASW
Shipbuilding and conversion	1,331	486
Aircraft and related proc.	1,962	482
Electronics procurement	-	20
Proc. of ordnance and ammo.	583	56
RDT&E	1,067	226
Total budget	11,214*	1,287**

Selected  
FY 1960 Budget  
(\$ Millions)

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

The Congressional hearings in 1959 for FY 60 began a period when the entire Navy budget was examined in terms of ASW. Not only was the Navy to present its budget request, but it was also expected to submit a list of priority items

*Congressional  
Concern over  
Navy's ASW  
Organization*

relating to ASW which the administration had deleted from the budget. Until 1963, Congress gave the Navy either all the President's budget called for or more, and the House Appropriations Committee was able to later claim, with some justification, that it had never failed to fund any project relating to ASW which the Navy requested on a priority basis.

By 1959, almost every item in the Navy budget, including POLARIS, in Congress's mind, was tied in one way or another to ASW. Congress in turn held the Navy accountable for not having found a counter to the Soviet submarine-launched ballistic missile threat. This criticism focused on the organizational structure of the Navy's ASW effort. In contrast, the Navy was more interested in maintaining a balanced force which could handle other aspects of the Soviet threat as well. Secretary of Defense Neil McElroy\* attempted to put the Soviet submarine threat in perspective in testimony before the House Appropriations Committee:

I think the Soviet submarine is an important threat, but as you visualize the kind of conflict that might take place between this country and the Soviet Union and what would remain in terms of bases to support those submarines after a nuclear exchange had taken place, I am not so concerned about that as I am about a good many other aspects of the Soviet capability. If you could imagine a limited war between this country and the Soviet Union, then you would be more concerned about the Soviet submarine capability, but I do not quite visualize that. (HACH, 86:1:1, 23 January 1959, p. 69.)

On the other hand, the Chief of Naval Operations, Admiral Burke, emphasized the importance of ASW to national security:

*Admiral Burke  
on ASW and  
National  
Security*

The Soviets, who launched the first successful earth satellite, are quite capable of producing guided missiles for submarine launch. They have proclaimed their great interest in missile warfare. . . . They have this capability—how far they intend to push it remains

\* Secretary of Defense from 9 October 1957 to 1 December 1960.

*Congress and Antisubmarine Warfare*

to be seen. . . . There is a pressing need to increase the capability to combat hostile submarines. Since World War II, the capability of the submarine has progressed at a more rapid rate than that of ASW forces. . . . There is no single or inexpensive answer to meeting this problem. It requires the close teamwork of all antisubmarine forces--surface, subsurface and air--served by an effective worldwide network of intelligence and communications. But even more important, improvements are required in the basic capabilities of antisubmarine forces to offset the advantages now held by the modern submarine. Effective, destructive weapons of much greater power are now available for use once an enemy submarine is located and identified. But technological breakthroughs are needed to solve the problems of detection, localization, and identification. New methods and new techniques are needed from basic research, which is the reason so much effort is being devoted to this area of research. (HACH, 86:1:1, 23 January 1959, pp. 661, 691.)

Hunter-Killer capabilities have been improved and strengthened. The "jeep" carrier has been replaced by the larger and faster Essex-class ships. . . . They can carry helicopters and the slower planes which are used in ASW, and they can move rapidly to areas of submarine concentration. Their air groups contain two post World War II ASW aircraft developments, the HSS helicopter and the Grumman twin-engined Tracker (S2F) fixed-wing aircraft. The latter is the first carrier aircraft to carry both the detection equipment and the weapons necessary to kill a submarine. . . . Modernization of the carrier-based ASW helicopter is planned in order to provide some all-weather capabilities. This will enable these helicopters to be flown under conditions of visibility and weather that would not have been possible in the past. . . .

Improved detection devices and weapons are being installed in the carrier-based S2F fixed-wing aircraft, the HSS helicopter, the land-based P2V patrol plane, the P5M seaplane,

*Sea-Based  
Airborne ASW  
Progress*

and airships as rapidly as time and funds permit. However, space and weight limitations restrict the installation in most of these aircraft of all the newly developed equipment now available. (HACH 86:1:1, 23 January 1959, p. 759)

*Block  
Obsolescence*

Another concern which Admiral Burke presented was the problem of block obsolescence of the fleet. The most vital area, according to Admiral Burke, was the need for a new Forrestal class attack carrier now to be built every other year. As most of the carriers in the active fleet were built during the World War II period, new construction was needed to replace the older carriers as they were retired. In addition, the air arm of the Navy was also deteriorating, and, although the Navy was requesting \$1,950 million for aircraft and related procurement, the number of planes in the active fleet were to be reduced from 7,595 to 7,200 in FY 60. In this budget, the procurement of thirty-six S2Fs and seventy HSS-2 helicopters was included.

*ASW and a  
Balanced  
Navy*

Admiral Burke and succeeding CNOs were concerned with maintaining a balanced Navy built around the carrier task force. However, Congress at the time was far more interested in strategic deterrence and defense, in which POLARIS and ASW were to play a major role in countering a Soviet submarine-launched ballistic missile threat. Chairman Mahon of the House Appropriations Committee questioned Admiral Burke about the Navy's ability to deal with Soviet POLARIS-type submarines that may appear off the U.S. coast in the future:

ADMIRAL BURKE: Because the seas are free, and they have a right to be there, we would have to know where they are, and remain in their vicinity. Then if there are any indications that they are going to attack you destroy them, but you could not go out and destroy them just because they are there. . . .

*ASW  
Progress*

MR. MAHON: Has the progress since World War II of antisubmarine warfare been greater than the progress in the development of the capabilities of submarines?

ADMIRAL BURKE: Against conventional-powered submarines the progress in antisubmarine warfare has been a little superior.

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S-B | A  
ASW

*Congress and Antisubmarine Warfare*

MR. MAHON: I am not talking about conventional-powered submarines.

ADMIRAL BURKE: Against a nuclear-powered submarine the antisubmarine warfare progress has not kept pace. (HACH, 86:1:1, 23 January 1959, pp. 639, 643.)

After this briefing by the CNO, the Committee requested a complete ASW briefing by the "top man" in ASW, Rear Admiral C.E. Weakley (Op-001). After making this request, the following exchange took place between Chairman Mahon and Admiral Burke. The issue raised dominated the interface between the Navy and Congress until the creation of Op-095:

*Congressional  
Criticism of  
the ASW  
Organization*

MR. MAHON: How many layers does Admiral Weakley have to go through to get to you?

ADMIRAL BURKE: None, sir. He reports directly to me. His position was established especially for that purpose. He sees me not less than once a week.

MR. MAHON: I sometimes wonder if the people who tell me from time to time they cannot get their message through are not right. I wonder if there is some merit in that.

ADMIRAL BURKE: Yes, that is true. That is why we set this antisubmarine warfare system up as we have now--so that Admiral Weakley reports directly to me. He has contacts throughout the Navy because all parts of the Navy contribute to some extent to antisubmarine warfare. So he has a very peculiar set up, but it is effective. (HACH 86:1:1, 23 January 1959, p. 645.)

At the requested ASW briefing, RADM Weakley outlined for the Committee the current elements relating to sea-based airborne ASW:

*Admiral  
Weakley  
Op-001*

The S2F is the fixed-wing aircraft, specialized for antisubmarine warfare, which flies from our antisubmarine aircraft carriers. There are thirty-six in the 1960 budget. The average age of this type is three years.

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## Congress and Antisubmarine Warfare

Sea-Based  
Airborne  
ASW

The helicopter is new in antisubmarine warfare. It has both detection and attack equipment. . . . There were sixty-nine of these in the 1959 budget. There are seventy in the 1960 budget. The average age of this type is 1.8 years.

The carrier which forms the air base for the Hunter-Killer groups is called the support or antisubmarine carrier. . . . The average age of this type is 15-1/2 years. (HACH, 86:1:2, 9 February 1959 p. 206.)

Although the Committee recommended cutting the overall Naval budget for FY 60 by \$82.7 million to \$11,108 million, it recommended an increase of \$255 million for items connected with ASW, broken down into the following components: (HACR, 86:1, pp. 17-18.)

<u>Appropriation</u>	<u>Funds</u>
Operation and Maintenance	\$ 4,500,000
Aircraft & Related Procurement, Navy	39,000,000
Shipbuilding & Conversion, Navy	97,200,000
Procurement of Ord. & Ammo., Navy	69,600,000
Research and Development, Navy	45,000,000
Total	\$255,300,000

Admiral  
Jerauld Wright  
CINCLANTFLT

In order to look at the Navy's ASW capability at the operational level, the House Appropriations Committee called the Commander in Chief, Atlantic Fleet, Admiral Jerauld Wright, and the Commander of the ASW Defense Force, Atlantic Fleet, Vice Admiral W.G. Cooper, before the Committee. These witnesses, confronted with the question about the Navy's capability to counter the Soviet SSBN, gave the Committee the same basic assessment of the situation that Admiral Burke had given:

MR. MAHON: Will your job be incomparably more difficult when the submarines of the opponent are largely of the atomic type?

VADM Cooper  
COMASDEFLANT

ADMIRAL COOPER: Yes, sir; infinitely more difficult, and we must have increased capabilities in order to cope with it.

MR. MAHON: We are not now presently qualified to cope with atomic submarines?

## Congress and Antisubmarine Warfare

ADMIRAL COOPER: Not in any numbers at present, sir. (HACH, 86:1:1, 11 February 1959, p. 321.)

The seriousness with which the Committee viewed the extensive testimony relative to ASW and the Soviet threat was summarized in its report, and it was the sense of the Committee that:

The growing Soviet submarine fleet is an unprecedented threat to our control of the seas. It cannot be minimized. It must be contained if there is to be assurance that the sealines of communication are to be available, in the event of war, to the oceanic confederation which is the free world. Of even greater concern is the threat of surprise attack from missile firing submarines lying hidden off our coasts. The primary responsibility for containing this threat rests with the United States Navy. (HACH, 86:1, p. 17.)

*Congressional  
View of the  
Threat*

Thus two factors emerged from the hearings which the House Appropriations Committee held in 1959. First, the Committee did not believe that sufficient funds were being devoted to ASW programs within the Navy. Second, certain members of the Committee were not impressed with either the ASW program that had been presented, or the organization within the Navy which was responsible for ASW.

Total DOD Budget - 46,430

*Selected  
FY 1961 Budget  
(\$ Millions)*

	NAVY	ASW
Shipbuilding and conversion	2,246	762
Proc. of aircraft and missiles	2,242	-
Aircraft & related procurement	-	340
Electronics procurement	-	22
Proc. of ordnance and ammo.	-	56
Other procurement	425	-
RDT&E	1,367	181
Total budget	12,013*	1,364**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

By 1960, the House Appropriations Committee prepared to move independently on both problems. With regard to the overall budget, the Committee proposed a 3 percent across

ASW Funding  
and a  
Balanced  
Fleet

the board cut in the Navy request of \$11,813 million for FY 61. In addition, it eliminated \$293 million designated for a new attack carrier. On the other hand, funding for the Fleet Ballistic Missile program was increased and the ASW portion of the total budget was raised by \$321 million. The latter was broken down into \$171 million for three attack submarines, \$50 million for two additional destroyer escorts, and \$100 million for ASW R&D. The net effect of these changes distorted the Navy's concept of a balanced fleet built around the attack carrier and placed, in the Navy's view, undue emphasis on ASW in the overall sea control mission. Admiral Burke was put in the unusual position of going before the Senate Appropriations Committee with a reclama asking for a return to the original Navy budget, which the Navy felt provided for a balanced fleet. He testified:

The House considered the original January budget submission together with later adjustments recommended by the Secretary of Defense. House action resulted in major changes in the original submission and, at the same time, did not accept the recommended adjustments. Action was also taken to cut other funds with the apparent purpose of making more funds available for additional procurement within the total budget. The Navy recognizes the intent of the House in making these modifications and appreciates the interest shown to assist the Navy in meeting some of our urgent requirements. Nevertheless, the changes made by the House in the President's budget, if enacted, would have fundamental effects upon the Navy's entire posture. (SACH, 86:2, 24 March 1960, p. 1714.)

Admiral Burke was partially successful in his reclama. The Navy was able to have restored substantially what it had requested. Although money allocated for ASW remained higher than what was originally requested, funds for a new aircraft carrier (eventually *America* (CVA 66)) were reinstated. The Navy finally received \$12,013 million in FY 61, of which \$1,364 million was allocated for ASW.

ASW  
Organizations  
Concerns -  
Still

The House Appropriations Committee still took the position that the Navy was still not properly organized to handle ASW. The Committee in its report for FY 61 advocated the creation of a single manager for ASW similar to the POLARIS program manager:

## Congress and Antisubmarine Warfare

The Navy has failed to push undersea warfare programs with sufficient vigour. Except for the indefatigable effort and obstinacy of one man we probably would not have the nuclear powered submarine which, in itself, in the attack version, is one of the best antisubmarine weapons. The nuclear powered submarine has proven to be one of the major accomplishments of this generation. The marriage of the atomic submarine with the POLARIS fleet ballistic missile promises to give us one of the greatest deterrent weapon systems yet devised. Both of these accomplishments have been notably successful because management at a critical stage was divorced from the stagnation of the usual bureaucratic organization and procedures. Studies made of our antisubmarine warfare efforts indicate that both organizational and inspirational action along similar lines is required. The Navy says that it is giving antisubmarine warfare its highest priority rating, yet there is no indication of dramatic or dynamic leadership in this field. The development work in this area is not being divorced from control of the semi-autonomous bureaus in the Navy Department. Until a single manager similar to that provided for the POLARIS ballistic missile system is established, it is doubtful that antisubmarine warfare will attain the goals so urgently required. The Committee recommends that such action be taken immediately. (HACR 86:2, p. 15.)

Criticism in  
1961

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Total DOD Budget - 50,203

Selected  
FY 1962 Budget  
(\$ Millions)

	NAVY	ASW
Shipbuilding and conversion	2,423	1,066
Proc. of aircraft and missiles	3,162	352
Electronics procurement	-	34
Other procurement	849	-
RDT&E	1,306	233
Total budget	14,592*	1,847**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

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## Congress and Antisubmarine Warfare

Funding Goes  
Up

The administration's Navy request for FY 62 came to \$13,458 million, and the final approval was \$14,592 million. Of this, \$1,847 million was devoted to ASW operations. ASW shipbuilding was again increased, to \$1,066 million, and procurement of aircraft and missiles increased slightly to \$352 million. Research and development totalled \$233 million.

Admiral Mustin  
Op-001  
Testitifes -  
1961

The ASW briefing given to Congress by Rear Admiral Lloyd M. Mustin (Op-001) in 1961 for FY 62 led to a lengthy discussion with the House Appropriations Committee. RADM Mustin's contention that research was ahead of the ASW problem took the committee by surprise. Representative Glenard Lipscomb of California pressed RADM Mustin on this issue:

MR. LIPSCOMB: From this statement, I gather that you have developed adequate techniques in research to handle a nuclear submarine of the Russian style and class that you anticipate they will have in 1965.

Representative  
Lipscomb

ADMIRAL MUSTIN: I believe that is a correct statement of the case by any method of evaluation known to me, technical evaluation, operational analysis evaluation, and fleet exercise evaluation. . . .

MR. LIPSCOMB: Then taking your statement in the broadest sense, you feel that your research is enough ahead to take care of the threat that will exist up to 1965, according to your present estimates?

ADMIRAL MUSTIN: I do indeed; yes, sir.  
(HACH, 87:1-4, 27 April 1961, pp. 334-35.)

Representative  
Gerald R. Ford

Representative Gerald R. Ford of Michigan summed up the reaction of the committee to RADM Mustin's statement: "I cannot believe what I have just read, from what we have heard over the last several years to my own personal knowledge." (HACH 87:1:4, 27 April 1961, p. 346.)

Representative  
Melvin R. Laird

From a detailed discussion of ASW capability, the committee turned to the issue of a project manager for ASW. Representative Melvin R. Laird of Wisconsin\* asked

\* Secretary of Defense from 20 January 1969 to 20 January 1973.

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S-R-A  
ASW

*Congress and Antisubmarine Warfare*

the Assistant Secretary of the Navy for R&D, James H. Wakelin, Jr., why the Navy had failed to act on the committee's recommendation of the previous year. After reviewing the organizational changes which had taken place since 1959, Secretary Wakelin gave Representative Laird the following reply:

From the way we have been operating among ADM Coates (Chief of Naval Research) . . . and Admiral Hayward (DCNO, Development) . . . Admiral Mustin (Op-001) and Admiral Groverman (Op-071), I do not feel that a new management structure from my point of view would help us get on any further or any faster with the job that we are trying to do in ASW, RDT&E. However, I will say this: That if it does appear necessary from our point of view to inaugurate a special project management for ASW, R&D, we will do it. If we can save one dollar or one minute of time and engineering or scientific help, we would be most happy to do it. I do not feel at the present time that we have had enough back of us with the new changes in organization to say we are not doing a good job." (HACH 87:1:4, 27 April 1961, p. 350.)

*The Navy  
Defends Its  
ASW  
Organization*

In a detailed, written statement submitted for the record, Secretary Wakelin argued that the recent reorganizations within the Navy Department which had created his office to oversee the RDT&E program along with the establishment of a Deputy Chief of Naval Operations for Development had all but eliminated the need for a separately identified project manager for ASW R&D. (HACH, 87:1:4, 28 April 1961, pp. 367-68.) The members of the committee, however, remained unconvinced. Said Representative Lipscomb:

Mr. Chairman, in regard to the document which was just placed in the record and which does not agree with this committee's recommendation of last year, . . . I feel that the committee's recommendation of a year ago is still as valid today as it was a year ago. . . . I would sure like to concur with your statement and encourage the Secretary to take another look at this proposal, as the Navy calls it, a single manager organization in order to have more vigor in ASW research,

*Congress  
Disagrees*

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development, test, and evaluation. I was concerned all last evening thinking of the best testimony that we had before this committee in the past day or so and I feel that our sense of purpose in ASW is not as vigorous today as it was a year ago, or else we have been a little misled as to the vital necessity of adequate antisubmarine warfare preparation." (HACH, 87;1:4, 28 April 1961, p. 369.)

Selected  
FY 1963 Budget  
(\$ Millions)

Total DOD Budget -- 50,850

	NAVY	ASW
Shipbuilding and conversion	2,442	1,184
Proc. of aircraft and missiles	2,917	468
Other procurement	874	268
RDT&E	1,484	300
Total budget	14,657*	2,206**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

Admiral  
Anderson on  
the Creation  
of Op-32

By 1962, further organizational changes relating to ASW were made by the new Chief of Naval Operations, Admiral George W. Anderson.\* On 20 October 1961, Op-001 was redesignated as Op-32. RADM Mustin became the first Director Antisubmarine Warfare Division.\*\* This new office was assigned the same roles, missions, functions, billets and personnel that had belonged to Op-001. Thus, the operational aspects of ASW were assigned to this new office which was under the supervision and direction of the DCNO for Fleet Operations and Readiness (Op-03). The ASW R&D effort was assigned to a new flag officer as Director, Antisubmarine Warfare Research and Development (Op-07C), under the DCNO (Development) (Op-07). He was also directly responsible to the Assistant Secretary of the Navy (R&D). In presenting these changes to Congress, Admiral Anderson stated that the CNO and his deputy were "the only two people that can look at the full spectrum of antisubmarine warfare, or anything else for that matter. . . ." (HACH, 87;2:2, 6 February 1962, p. 393.) However, these changes were not entirely acceptable to the Committee, as

\* CNO from 1 August 1961 to 1 August 1963.

\*\* RADM Mustin was replaced in December 1961 by Rear Admiral John N. Shaffer.

## Congress and Antisubmarine Warfare

summarized by Representative Daniel Flood: "I am not satisfied or I am not clear that you have dignified ASW within the chain of command." (HACH, 87:2:2, 6 February 1961, p. 409.)

Representative  
Daniel Flood

The ASW budget for FY 63 proposed and approved was \$2,206 million overall, with \$286 million for R&D, \$1,184 million for shipbuilding and conversion, \$468 million for major procurement (aircraft and related material), out of a total \$14,657 million finally approved.

Total DOD Budget - 50,647

Selected  
FY 1964 Budget  
(\$ Millions)

	NAVY	ASW
Shipbuilding and conversion	2,005	1,133
Proc. of aircraft and missiles	2,487	471
Other procurement	1,106	218
RDT&E	1,548	373
Total budget	14,450*	2,106**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

The hearings held in 1963 emphasized the House Appropriations Committee view of ASW. No longer was anti-submarine warfare referred to as a function of sea control, but considered as a separate mission to which most of the Navy's energies should be directed:

A significant portion of the Navy's General Purpose Forces are trained and equipped to carry out the antisubmarine warfare (ASW) mission. The detection, tracking and destruction of enemy submarines continues to be a problem of growing concern to the United States. (HACR, 88:1, p. 9.)

The Committee's approach to ASW was the culmination of a trend which began in 1956. The continuing heavy emphasis which the Navy, and in turn the House Appropriations Committee, placed on the importance of ASW had divorced it from its context as a part of sea control, which was in fact the mission of the Navy's general purpose forces. According to Committee reasoning, if ASW was one of the major missions of the Navy, then naturally, like the POLARIS program, it should have its own director who would be responsible for every aspect of this mission.

Selected  
FY 1965 Budget  
(\$ Millions)

Total DOD Budget - 60,651

	NAVY	ASW
Shipbuilding and conversion	2,008	964
Proc. of aircraft and missiles	2,423	463
Other procurement	1,161	318
RDT&E	1,389	314
Total budget	14,856*	2,060**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

VADM Martell  
Becomes  
Op-95

Finally, in 1964, Admiral David L. McDonald, the new CNO,\* announced the creation of the office which the Committee had been demanding: Op-95, headed by Vice Admiral Charles B. Martell and reporting directly to the CNO.\*\* Said Admiral Anderson:

RADM Karabaris  
PM4

Over the years, questions have been raised regarding the Navy's ASW organization. Generally, our major lack of progress has been in the areas of equipment improvements rather than tactics and operations. When the Chief of Naval Material assumed command of the four material bureaus on 2 December 1963, he forthwith established an ASW project administrator with direct control and authority over all aspects of ASW in each of these material bureaus. This office has already been staffed and is headed by a flag officer (RADM Karabaris). In spite of the fact that the operational and tactical aspects of this problem seem well in hand, we are concentrating the ASW effort in the Office of the Chief of Naval Operations under an Executive Director of ASW programs. This officer will be of three-star rank, having direct access and coordinating authority over ASW matters in all areas in the Office of the Chief of Naval Operations, including research and development. Additionally, he will be a member of the Ships Characteristics Board, and will be the program sponsor for the entire ASW effort. He is

\* CNO from 1 August 1963 to 1 August 1967.

\*\* Executive Director for ASW programs from 1 May 1964 to 31 October 1967.

## Congress and Antisubmarine Warfare

charged with reviewing the financial decisions on Navy programs, evaluating their impact on the total ASW programs and then initiating action to insure the adequacy of the ASW program. With the requirements and operational aspects thus concentrated in the Office of the Chief of Naval Operations and the producer functions concentrated under the Chief of Naval Material, I believe that we will have attained a most effective ASW organization. The Executive Director of ASW Programs, functioning directly under me, will be the Mr. ASW for the Navy. (HACH, 88:2, 28 February 1964, pp. 667-668.)

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Total DOD Budget - 65,647

Selected  
FY 1966 Budget  
(\$ Millions)

	NAVY	ASW
Shipbuilding and conversion	1,861	726
Proc. of aircraft and missiles	3,452	451
Other procurement	1,947	406
RDT&E	1,565	357
Total budget	19,185*	1,941**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

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In the hearings held in March 1965, Congress as well as the House Appropriations Committee finally received a briefing from the newly appointed ASW program manager. VADM Martell in general impressed the members on both the House and Senate Appropriations Committees. The ASW program he outlined was not a radical departure from that laid out by Admiral Burke several years earlier:

VADM Martell  
on the New  
ASW  
Organization

The role of our antisubmarine warfare forces is to contribute to the Navy's overall mission of controlling the seas in time of war, to the extent that we use the seas as freely as necessary to carry out our national objectives, while simultaneously denying that capability to the enemy. These objectives can be summarized under three headings: First, logistics support of oversea operations, including the protection of our maritime forces and support of our allies. Secondly, capability to defeat the

## Congress and Antisubmarine Warfare

enemy in a war at sea. And finally, defense of the continental United States, certainly rating as an urgent concern in all Navy planning and thinking. . . .

You might feel that this is just another antisubmarine warfare organizational layer in the Navy. I can assure you it is not. I have been given authority and I use it. It would be impossible to carry out this important undertaking without the complete support of the Chief of Naval Operations, the Secretary of the Navy, and the other senior officials in the Department. I assure you I have this support in full measure. (HACH, 89:1:3, 11 March 1965, pp. 684-686.)

Congress  
Finally Gets  
Its Way

The appointment of VADM Martell effectively ended Congressional concern over the Navy's ASW organization, representing the high point in Congressional-Navy involvement in ASW matters just before Vietnam. It may be that, in the end, the Navy gave Congress more than it originally had requested. As late as the hearings held in 1963, the House Appropriations Committee went on record as wanting basically a program manager for the procurement side of the Navy's ASW effort to balance the R&D side created by the establishment of Op-07C. (HACH, 88:1:6, 2 May 1963, pp. 391-3.)

## III. ASW in the Vietnam Era, 1966-1974

Selected  
FY 1967 Budget  
(\$ Millions)

Total DOD Budget - 72,436

	NAVY	ASW
Shipbuilding and conversion	2,258	700
Proc. of aircraft and missiles	3,633	349
Other procurement	2,228	352
RDT&E	1,921	361
Total budget	21,190*	1,761**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

1966, the first year to show the impact of U.S. involvement in the Vietnam conflict, was a turning point in Navy discussions over ASW. An example of the cost-

## Congress and Antisubmarine Warfare

effectiveness analysis methods which Secretary of Defense McNamara\* introduced into the budget process was his testimony for the FY 67 budget that the Department of Defense would drop the last "straight deck" carrier (Lake Champlain, CVS 39) from the fleet. It was estimated that this would save approximately \$22 million with no undue degradation of ASW preparedness. Eight other CVS's were to be retained, with four each in the Atlantic and Pacific. In addition, the Navy's latest ASW helicopters--the SH-3A/D--would be assigned to attack carriers to increase their overall ASW capabilities. (HACH, 89:2:1, 16 April 1966, pp. 151-152.)

Secretary of  
Defense  
McNamara  
Announces  
Retirement  
of CVS 39

According to the Secretary of Defense, the issue was cost versus effectiveness and the Lake Champlain was simply not cost effective. Since, in Secretary McNamara's opinion, the U.S. ASW capability was more than sufficient, the CVS forces could stand the loss of one CVS. This began a process which because of the demands of Vietnam on the Navy's resources led eventually to the phasing out of all the CVS carriers by 1974, and the abandonment of the HUK concept which had always been presented by Naval witnesses as an integral part of the U.S. ASW capability.

The Navy had little to do with this decision, as is brought out in the testimony of the CNO, Admiral McDonald. When asked how this move affected the U.S. ASW capability, he gave Representative Lipscomb the following explanation:

Admiral  
McDonald  
is Concerned

Our ASW capability as far as the Hunter-Killer force in the Atlantic is concerned, is reduced by two-fifths. . . . (We) are going to send (Intrepid, CVS 11) to the western Pacific to help improve the rotation base for our light attack effort. This was done upon our recommendation, although at the time the decision

\* Secretary of Defense from 21 January 1961 to 1 March 1968. He achieved an unprecedented control over the defense budget, becoming the most powerful defense secretary of the postwar period. He placed emphasis on the PPB (Planning, Programming and Budgeting) functions and the "Cost Reduction Program". After 1962, all defense budgets were drawn up in terms of these two principles. While Congress was impressed with the \$15 billion savings that Secretary McNamara claimed to have saved between 1962 and 1968 there was a growing concern over the tendency to make decisions solely on the basis of cost. In 1966, the Chairman of the House Armed Services Committee, L. Mendel Rivers of South Carolina, summarized this feeling: "Too often, it is feared, the almost obsessional dedication to cost effectiveness raises the specter of a decision-maker who . . . knows the price of everything and the value of nothing."<sup>15</sup>

was made we had not anticipated the straight deck carrier being phased out of commission. It was because of the utilization of the *Intrepid* in a partial attack role that caused us really to reclama the decommissioning of the *Lake Champlain*, which is a straight deck carrier. This was not supported.

The statement was made that we had remaining adequate ASW capability because this straight deck carrier represented such a small percentage of our overall ASW effort. Therein lay the difference of opinion. (HACR, 89:2:1, 28 February 1966, p. 675.)

*A Shift in  
Presentation  
Emphasis*

Rear Admiral H.G. Bowen, Jr. (DCNO, Development) delivered the main ASW briefing as part of the R&D testimony. Although VADM Martell would appear before Congress in 1967, thereafter the general ASW program was presented to Congress by RDT&E witnesses as a series of R&D programs.

During this period Congress' concern for ASW was diverted by the larger issues arising over Vietnam. Congress was caught up in the growing tension with the Executive branch over their respective roles in funding the military establishment. In 1965 three members of the House Appropriations Committee filed a minority opinion on the FY 66 budget criticizing both the budget and the administration, charging that the witnesses appearing before the Committee were not allowed to express their own opinions. (HACR, 89:1, pp. 63-64.) Representatives Melvin R. Laird of Wisconsin, Glenard P. Lipscomb of California, and William E. Minshall of Ohio were concerned that the administration bill as approved by the House provided adequate funding neither for Vietnam nor for the necessary

*Selected  
FY 1968 Budget  
(\$ Millions)*

Total DOD Budget - 75,627

	NAVY	ASW
Shipbuilding and conversion	1,146	412
Proc. of aircraft and missiles	3,248	324
Other procurement	2,153	369
RDT&E	1,878	306
Total budget	20,780*	1,412**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

*Congress and Antisubmarine Warfare*

advanced development in ASW. These same three representatives took the rather unusual step the following year by attaching a similar minority opinion in the HACR for FY 67. (HACR, 89:2, pp. 34-43.)

In hearings for the FY 68 budget, Secretary McNamara informed Congress that there would probably be further cuts in the CVS forces in the coming years as the result of long-term studies which had been undertaken--a probable reference to the CYCLOPS II study which presented an optimistic picture of the overall ASW capability and which also ascribed a very limited role and effectiveness to the CVS task groups. As a result, Secretary McNamara told Congress:

*SecDef  
McNamara  
on CVS  
Effectiveness*

It now appears that some additional changes should be made in our ASW program. These involve the size of our ASW carrier forces, and the substitution of land-based patrol aircraft for the seaplanes. . . . The ASW carriers are not by any means the most important element or the most effective element of our ASW force. (HACH, 90:1:2, 6 April 1967, p. 306.)

This assessment was not shared by Secretary of the Navy Paul H. Nitze,\* who laid the weakness in the CVS concept to the aircraft, and not the ship itself. In his testimony he discussed the importance of the CVS in the following terms:

*Secretary of  
the Navy  
Nitze on CVS  
Concept*

The CVS can operate independent of land bases. It is most effective relative to patrol aircraft when operating at substantial distances from available airfields, for example when providing protection for an attack carrier group or killing submarines in the open ocean. However, our CVS forces have not yet advanced in capability at a pace equal to other ASW forces. A primary factor has been the limitations of the S-2 airframe. It is simply too small, slow, and limited in range to exploit new equipment and techniques. The VSX, now under detailed design study, should when combined with new developments coming along, increase the effectiveness of the CVS manyfold. (HACH, 90:1:2, p. 861)

\* Secretary of the Navy from 29 November 1963 to 30 June 1967.

VADM Martell's  
Last Briefing  
1967

It was against this background that VADM Martell gave his last briefing to Congress on the overall ASW program on 25 April 1967. As had been the case with earlier briefings, much of VADM Martell's testimony given before Congress was off the record due to its sensitive nature. However, he did publicly alert the Committee to some important changes in the threat:

Soviet  
Operating  
Patterns  
Shift

There have been a number of dynamic changes in the Soviet operating patterns which demonstrate a growing capability to operate their very extensive submarine force. As a result of specific Soviet policy to move their submarines to the high seas, we now see them operating almost constantly in the Mediterranean and Philippine Sea, as well as in special operational exercises. . . .

ASW aircraft, either land or carrier based, . . . provide our offensive capabilities in broad ocean areas outside of enemy-controlled waters.

Perimeter defense lies in the domain of surface escorts and helicopters, both depending largely on active search because of the noise level of the ships being guarded. As currently equipped, CVS groups are an important element of our perimeter defense and ASW aircraft would be used to perform search and attack missions in broad ocean areas well in advance of the force. (HACH, 90:1:6, 25 April 1967, p. 3-4.)

VADM Martell was then questioned on two areas which were always important to the members of the House Appropriations Committee, the adequacy of the ASW budget and the capability allowed by that budget. VADM Martell stated that there were several problems which made the budget situation critical. Among these was VADM Martell's concern with the VSX (later to become the S-3) program.

Congressman  
Minshall

In terms of overall ASW capability, VADM Martell stated that the current U.S. ASW capability was "perfectly level" as it related to the threat:

MR. MINSHALL: If you were given a larger ASW force level, would that change the picture any?

## Congress and Antisubmarine Warfare

ADMIRAL MARTELL: Yes, sir. Clearly it is the capability, the new aircraft and submarines, to take the offensive against the submarine before he gets to your carriers or to your merchant ships that pay off.

MR. MINSHALL: With a larger force level then you would be better able to deal with the Soviet submarine fleet?

ADMIRAL MARTELL: That is correct.

MR. MINSHALL: To what degree, and what would be the force level we refer to?

ADMIRAL MARTELL: I think I am talking in terms of essentially the force levels that we are building to now, Mr. Minshall. (HACH, 80:1:6, 25 April 1967, p. 15.)

Total DOD Budget - 72,445

Selected  
FY 1969 Budget  
(\$ Millions)

	NAVY	ASW
Shipbuilding and conversion	1,005	236
Proc. of aircraft and missiles	3,184	393
Other procurement	2,376	310
RDT&E	2,178	367
Total budget	21,552*	1,306**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

During the hearings in 1968 the Secretary of the Navy, Paul R. Ignatius,\* reported what Secretary Nitze had said earlier: the CVS was to have a primary mission in ASW during the 1970's:

Secretary of  
the Navy  
Ignatius on CVS  
in the 1970s

In areas far from available land bases, carrier-based aircraft will be the only way to provide air ASW coverage. In addition, a carrier can be moved to operating areas where a higher concentration of force is needed than could be provided from available land bases.

\* Secretary of the Navy from 1 September 1967 to 24 January 1969.

Moreover, the CVS weapon system will not be dependent on foreign bases and will provide us with a rapidly deployable air ASW capability in regions where bases are not available—such as areas of the South Atlantic where the Soviets have, during the past year, tested open ocean basing from tenders and supply ships. The VSX is the aircraft we plan to operate from the CVS.

The VSX will replace the present S-2. It will be a jet aircraft of moderately high speed and long endurance. It will give the CVS an effective radius of action commensurate with its primary role in the 1970's. (HACH, 90:2:1, 28 February 1968, pp. 894-895.)

1968 - SecDef  
McNamara  
Reduces the  
CVS Force

On the other hand, Secretary of Defense McNamara during the 1968 hearings presented his view to Congress that the improved capabilities of the VSX would enable the CVS force to be reduced in absolute numbers and still retain the same capability. Secretary McNamara testified:

The question of whether to retain a sea-based airborne ASW capability received intensive study during the past year, and it now appears that the advantages and flexibility inherent in such a force would marginally warrant its continuation in the 1970's--provided that its effectiveness could be greatly improved. Since the effectiveness of the present CVS force is limited by the inadequacy of its fixed-wing aircraft and their sensors, it is clear that a new and much more capable aircraft must be provided. The development and production of such an aircraft will be a very expensive undertaking, but it is the only solution available if we are determined to have an effective sea-based ASW capability. . . .

In light of the decision to go ahead with the VSX and in view of the vast improvement in its performance versus current ASW carrier-based aircraft, we now plan to reduce the CVS force to five carriers and four air groups when the Vietnam conflict is concluded. . . . (HACH, 90:2:1, 14 February 1968, pp. 183-184.)

## Congress and Antisubmarine Warfare

Chief of Naval Operations Admiral T.H. Moorer\* in his testimony not only argued for the retention of the anti-submarine carriers, but for an additional CVS to counter the growing Soviet SS threat to the 6th Fleet in the Mediterranean. He told the Committee that since the smaller *Shangri-La* (CVA 38) was due to be replaced numerically by the new *Kennedy* (CVA 67), he hoped to be able to add the former to the ASW forces. (HACH, 90:2:1, 28 February 1968, p. 980.) The official position of the Navy in 1968 was that the CVS was still an important part of the total ASW effort, notwithstanding the plans and policy of the outgoing Secretary of Defense.

*Admiral Moorer  
Defends the  
CVS*

In his 1968 testimony, Admiral Moorer stressed the importance of ASW relative to the goal of a balanced fleet:

MR. MAHON: . . . The question is this: What priority are you giving the ASW program in this budget and in your operational planning? I would like to have you comment on that and I would like to have the Secretary comment on that.

ADMIRAL MOORER: . . . Generally speaking we are giving very high priority to the ASW effort, sir.

MR. MAHON: Are you giving it the highest priority in the Navy?

ADMIRAL MOORER: I would not want to qualify it in that sense because we do attempt to maintain a balance of forces, but we are giving it the highest priority possible while at the same time maintaining the other capabilities that are necessary to meet our commitments. (HACH, 90:2:1, 28 February 1968, p. 931.)

*ASW and a  
Balanced  
Fleet*

The report which the House Appropriations Committee issued as a result of these hearings shows that the Committee as a whole was still concerned about the Soviet underwater threat, especially the SSBN. However, the Department of Defense budget was already over \$77 billion in 1968. This was the dilemma faced by the Congress and

*The Effect of  
Vietnam*

\* CNO from 1 August 1967 to 1 July 1970.

## Congress and Antisubmarine Warfare

the Navy: Vietnam was demanding too much attention and money.

A report issued in the same year by the House Armed Services Committee entitled *The Changing Strategic Naval Balance* was also pessimistic. The report did not agree with the philosophy of Secretary of Defense McNamara in terms of parity with the Soviet Union:

Congress is  
Concerned  
About the  
McNamara  
Approach

The United States has to keep in mind the importance of naval innovation and the danger of obsolescence. Unfortunately, the strategic notions of "parity", popular during the McNamara years, had among their by-products the throttling of efforts to achieve maximum naval advantage vis-a-vis the Soviet Union. American restraint in naval construction in the 1960's has failed to bring any slowdown in the U.S.S.R.'s naval construction program. The Soviet sea power drive shows that disarmament by restraint won't work. . . .

Another relevant factor today is that the antisubmarine warfare capability of the U.S. and allied navies still lags behind the submarine warfare threat. Recent deactivation of 50 warships and 100 naval aircraft, many of them antisubmarine warfare warships, underscores U.S. weakness in this critical field of naval operations.<sup>16</sup>

Selected  
FY 1970 Budget  
(\$ Millions)

Total DOD Budget - 76,035

	NAVY	ASW
Shipbuilding and conversion	2,418	
Proc. of aircraft and missiles	2,794	
Other procurement	1,896	408
RDT&E	2,267	423
Total budget	22,462*	2,182**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

This testimony in 1969 reinforced the testimony of the CNO, Admiral Moorer, on both the effect of V

*Congress and Antisubmarine Warfare*

the Navy and in particular the effect of Public Law 90-364 (the Federal Revenue and Expenditure Control Act), passed by Congress in 1968, which required a reduction of \$6 billion in FY 69 expenditures. This drive to reduce defense spending was spearheaded by House Appropriations Committee Chairman Mahon, who worked closely with the new Secretary of Defense, Melvin R. Laird,\* himself a former member of the Defense Subcommittee. In all, Congress cut a total of \$5,995 million from the defense budget for FY 70. This was the largest reduction in defense spending since the Korean War. At the conclusion to his official testimony, Admiral Moorer reviewed the implications of these reductions on the future of the Navy:

*Pressure to  
Reduce  
Defense  
Spending*

I would like to point out that . . . (these) cuts have come at a time when the Soviet Union is rapidly building her maritime power and while we have an on-going war in Vietnam.

*Soviet  
Strength  
Increases*

It is important to note that the number of fighter and attack aircraft for which procurement is included in the FY 70 budget is the lowest since 1946. The FY 69 appropriation for shipbuilding and conversion was the lowest since 1955 and the U.S. Navy today has fewer active ships than were in the Fleet when the Vietnam war intensified in 1965. (HACH, 91:1:7, 13 October 1969, p. 222.)

Given the impact of both funding and the requirements for Vietnam, every program, including ASW, was affected. Officially, sea-based airborne ASW capability was still necessary for the overall ASW program in 1969 which can be seen in the exchange between Senator Stuart Symington of Missouri\*\* and Admiral Moorer:

*Senator  
Symington  
and Admiral  
Moorer*

\* Secretary of Defense from January 1969 to January 1973.

\*\* Senator Symington had been Secretary of the Air Force from September 1947 until April 1950, and served in the Senate from 1953 to December 1976. He had been a longtime ally of the military on the Senate Armed Services Committee. However, Symington's recent dissatisfaction with military spending was symptomatic of the problem which all of the military services were facing in Congress. In a Senate floor speech in 1971, he charged: One of the chief reasons why we are heading toward further financial trouble . . . is the fact that we are already purchasing, or planning to purchase, many weapons systems which are not necessary to our national security."<sup>17</sup>

*The CVS/S-3  
Concept is  
Questioned*

SENATOR SYMINGTON: The antisubmarine warfare aircraft carrier, CVS, will have its effectiveness increased by the development of the S-3 fixed-wing carrier-based ASW aircraft. Yet the CVS is threatened by the Soviet air-to-surface, surface-to-surface, and submarine-launched cruise missiles. Is it wise to spend so much money to perpetuate an ASW capability based on such an expensive and vulnerable fashion, or should we use this money to move toward more dispersed and more novel concepts such as mines, helicopters, and surface-effect high-speed ships?

ADMIRAL MOORER: . . . So far as the CVS is concerned, the whole issue revolves around whether or not there is a bona fide requirement for operating fixed wing ASW aircraft from the sea. If the answer to this is yes, then it is the S-3A. . . . The CVS with the S-3A aircraft is a weapon system designed to make it possible to move ships, men and material in areas of the world where no other system can provide the same type of protection against the risk imposed by a large and increasingly dangerous Soviet submarine force. We are also putting efforts into acquiring systems which will protect not only the CVS task groups but other naval forces against Soviet cruise missiles launched either from submarines or from surface ships. Both the antisubmarine and anticruise missile efforts are responses to different aspects of the Soviet threat if we are to be able to operate at sea at all, but the emergence of the cruise missile threat has compounded our need for increasingly scarce resources to maintain a viable, credible U.S. naval posture on the oceans of the world. (SACH, 91:1, 23 July 1969, p. 155.)

Despite the warnings of reduced capabilities, both Appropriations committees cut the President's budget for the Navy from \$22,804 million to \$20,535 million, an across the board cut.

*Admiral  
Zumwalt*

The appearance of Admiral Elmo R. Zumwalt as Chief of Naval Operations\* before Congress in 1971 in many ways

\* CNO from 1 July 1970 to 29 June 1974.

UNCLASSIFIED

S-B A  
ASW

Congress and Antisubmarine Warfare

Total DOD Budget - 74,340

Selected  
FY 1971 Budget  
(\$ Millions)

	NAVY	ASW
Shipbuilding and conversion	2,242	1,143
Proc. of aircraft and missiles	3,310	325
Other procurement	1,657	361
RDT&E	2,199	552
Total budget	21,691*	2,381**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

completes a cycle began in 1956. His testimony before the Committees of Congress sounded similar to the testimony of Admiral Burke in the 1950's. Admiral Zumwalt was the first non-aviator to follow Admiral Burke, himself the first non-aviator CNO for many years. Both men brought to the Navy's top office extensive knowledge of the operational aspects of the surface fleet. For Admiral Burke, as described earlier, the threat of the day was the Soviet submarine building program. However, for Admiral Zumwalt, it was more a question of the three dimensional threat posed by the Soviet Navy which in addition to a formidable submarine fleet also had built a sizable surface fleet and in home waters possessed a large air arm. All three of these threats were made even more dangerous by the long range missile capabilities of the Soviets.

Total DOD Budget - 77,484

Selected  
FY 1972 Budget  
(\$ Millions)

	NAVY	ASW
Shipbuilding and conversion	3,014	1,636
Proc. of aircraft and missiles	3,932	928
Other procurement	1,729	294
RDT&E	2,411	549
Total budget	24,040*	3,407**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

The general thrust of Admiral Zumwalt's testimony before Congress in 1971 was that the U.S. was in danger of losing its command of the seas, and if there was a conventional war with the Soviets at sea in the near future, the

UNCLASSIFIED

Admiral Zumwalt  
on the  
Condition  
of the Navy  
1971

U.S. might in fact lose. Whereas Admiral Burke had been uncertain that the Navy could effectively handle the submarine threat, Admiral Zumwalt was additionally concerned that the Navy could not handle the surface and cruise missile threat. As early as 1971, in his official FY 72 statement, Admiral Zumwalt outlined the current state of the Navy's sea control forces:

Our sea control forces have been reduced significantly as a result of fiscal cutbacks in the past three years. The nature of the cutbacks, expenditure reductions, concentrated most of the effects in our operating forces and personnel strengths. Also we opted to accept a lower than prudent level of current forces in order to allow a minimum acceptable level of development and modernization. In essence, this was a trade-off of the present for the future. (HACH, 92:1:1, 15 March 1971, p. 946.)

The Sea Control  
Ship and the  
CV

Faced with a steady reduction in Naval forces, especially in the number of CVS carriers, Admiral Zumwalt brought forward the concepts of the multipurpose carrier (the CV), and the Sea Control Ship (SCS) in 1971. Admiral Zumwalt announced that Saratoga (CVA 60) would be used to evaluate the CV concept which would give greater flexibility to the remaining naval forces:

. . . A single carrier would have variable strike, antiair warfare and antisubmarine missions. Mission emphasis would be by the relative numbers of attack, fighter, anti-submarine and combat support aircraft within the deck loading of the carrier. Deck loadings and missions could be changed as the threat changes. The CV concept has not undergone operational evaluation and practical difficulties abound. However, if feasible it will provide us options in the face of reduced carrier force levels. In other words, it will make best use of our carriers, now too few to operate in the single ASW or strike role of earlier years. (HACH, 92:1:1, 15 March 1971, p. 952.)

Thus, the steady decline in antisubmarine carriers was not due to the questioned value of sea-based airborne ASW, but rather to the severe funding constraints that

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Vietnam was placing on the Navy.\* The CV concept and the Sea Control Ship were attempts to keep sea-based air in the ASW program both for the short-term as part of the air component on the CV, and in the long-term in the SCS.

Total DOD Budget - 87,142

Selected  
FY 1973 Budget  
(\$ Millions)

	NAVY	ASW
Shipbuilding and conversion	2,909	1,677
Proc. of aircraft and missiles	3,647	1,002
Other procurement	2,249	296
RDT&E	2,542	368
Total budget	25,338*	3,342**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

In the winding down of Vietnam, Admiral Zumwalt found himself facing a critical Congress:

MR. WHITTEN (of Mississippi): It strikes me that you are still living in the past in that you are projecting what you would like to have, just as it used to be, and holding Russia away off up here, I cannot say what Russia has. . . .

Mr. Whitten  
is Critical

ADMIRAL ZUMWALT: Let me say I could not disagree more with your statement, as to what our assumptions are. I think that we in the military recognize very keenly that we face a completely different situation than we have faced in the past.

We have two choices. One is to maintain strength now and lose in the long run relative to the Soviets. The other is to give up more of our present strength in terms of old ships and people in order to build new equipment and to have some possibility of deterring war in the future. (HACH, 92:2:1, 1 February 1972, pp. 211-212.)

\* Coupled with the fact that the ESSEX class CVSS were costly to maintain and operate after nearly thirty years of service.

Selected  
FY 1974 Budget  
(\$ Millions)

Total DOD Budget - 85,023

	NAVY	ASW
Shipbuilding and conversion	3,499	1,528
Proc. of aircraft	2,939	768
Proc. of weapons	800	200
Other procurement	1,383	279
RDT&E	2,705	314
Total budget	26,917*	3,091**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

Zumwalt is  
Critical

Faced with this attitude in Congress, in 1974 Admiral Zumwalt became the first Chief of Naval Operations to openly criticize the budget and blame not only the executive branch but also Congress. Admiral Zumwalt broke with the long standing tradition that no witness from the Navy would fail to support the President's budget. He was cataloging the ills of the Navy in 1974 when Congressman Flood questioned the Admiral as to why this decline had taken place:

MR. FLOOD: Do you know that this is the first time in several years . . . that the Navy has really said, "We are falling behind!" In the last 5 years, why hasn't the Navy come up here and said, "What about us".

ADMIRAL ZUMWALT: This is the fourth consecutive year I have testified in front of this committee that we were falling behind.

Mr. Flood  
Wonders Where  
the Protesters  
Are

MR. FLOOD: But you have been doing a solo. . . . What happened to the Navy in the Pentagon in the last 5 to 10 years?

ADMIRAL ZUMWALT: We have been cutting the Navy in half.

MR. FLOOD: I know this. What is the matter with you fellows? Have you lost your clout at the Pentagon, or the Congress, or what?

ADMIRAL ZUMWALT: My thesis today is to show what we have been up to in an era when we

*Congress and Antisubmarine Warfare*

are told the people will not support budgets of the size we need. . . .

MR. SIKES: Have you actually been seeking additional funds, substantially more funds than you have been getting?

ADMIRAL ZUMWALT: Yes.

MR. FLOOD: Who torpedoed your budget?

ADMIRAL ZUMWALT: Each year the Secretary of the Navy reduced the request of the Chief of Naval Operations. The Secretary of Defense then reduced the request of the Department of the Navy. The Bureau of the Budget then reduces the requests of the Secretary of Defense. All of this because the judgement corporately within the Government has been that the people will not support budgets larger than those which have been submitted. This judgment, I take it, is accurate, because the Congress has reduced our budgets \$2 billion, \$3 billion, \$5 billion, and \$3 billion in the last few years. (HACH, 93:2:2, 11 March 1974, pp. 128-129.)

*How the  
Budget is  
Reduced*

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Total DOD Budget - 87,193

	NAVY	ASW
Shipbuilding and conversion	3,118	1,273
Proc. of aircraft	2,777	805
Proc. of weapons	739	179
Other procurement	1,570	330
RDT&E	3,052	330
Total budget	27,941*	2,921**

*Selected  
FY 1975 Budget  
(\$ Millions)*

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

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More optimistically, Admiral Zumwalt informed the House Appropriations Committee in March 1974 that the fleet should improve in the future:

On the United States side, total ASW forces have dropped markedly in the past 5

However, ASW  
Should Start  
Looking Up

years. Only in the SSN category has there been growth. The retirement of our ASW carriers (CVSSs) has reduced the number of sea-based helicopters and fixed-wing ASW aircraft (S-2s). We have also retired some surface combatants and land-based patrol aircraft. Over the next 5 years, however, the trend will be reversed. We will continue to retire more ASW-capable ships than we build, but at a rate far less than that of the past 5 years. The number of land-based patrol aircraft will stabilize, the SSN building program will continue to enlarge that force, and our sea-based ASW aircraft forces will increase with the introduction of the S-3 and the LAMPS helicopter and the sea control ship with its SH-3 Helos. (HACH, 93:2:2, 11 March 1974, pp. 148-149.)

The High-  
Low Concept

According to Admiral Zumwalt, one of the keys to restoring the Navy's ASW capability was the Sea Control Ship. As part of the low end of his high-low concept\* for the fleet of the future, the Sea Control Ship was the answer to restoring a sufficient number of air capable platforms for sea-based airborne ASW. In the end, following the lead of the House Appropriations Committee and its chairman, George Mahon, Congress terminated this project. The House Appropriations Committee report for FY 74 summarized the Committee's opposition to the Sea Control Ship concept:\*\*

The Fate of  
the Sea Control  
Ship

The Navy budgeted \$142,900,000 to build the first Sea Control Ship. Only \$16,000,000 of the request was authorized. A recent Committee study shows the Sea Control Ship and its currently available aircraft provide only a limited capability to counter the submarine torpedo threat, and virtually no capability to counter the major threat to convoys and to the

- \* Meaning "low" in cost and value, hence more capable of production in numbers as opposed to the "high" in cost and capability end of the spectrum, such as the nuclear carriers and other fleet units.
- \*\* The SCS concept failed for a number of reasons. Officially, Congress was not convinced that the SH-3 helicopter and the AV-8 Harrier V/STOL were the ideal aircraft for a new ship concept that would take some years to build, nor could the Navy satisfactorily describe the future helicopters and V/STOLs that would be available when the SCS was delivered. Admiral Zumwalt, in his memoirs of these years, On Watch, lays the blame on the nuclear propulsion controversy.<sup>18</sup>

## Congress and Antisubmarine Warfare

fleet--the cruise missile. (HACR, 93:2, pp. 120-121.)

Congress also cut \$437 million requested for seven ASW frigates (FFG 7 classes) to \$186 million.

The hearings held in 1974 mark the completion of a 20 year cycle. In many ways, Admiral Zumwalt renewed a point of view which had been begun by Admiral Burke. For both men sea-based airborne ASW was an integral part of the Navy's answer to the submarine threat. There were differences, however. Whereas Admiral Burke had laid stress on ASW as almost a mission in itself, Admiral Zumwalt always kept it within the confines of the more comprehensive mission of sea control. It is also noteworthy that one of the critical ASW tasks that Admiral Burke claimed for the Navy was the Soviet SSBN, yet Admiral Zumwalt did not mention this threat in his ASW presentation.

Admiral Burke  
and Admiral  
Zumwalt

## IV. Post-Vietnam Attitudes, 1975-1977

Total DOD Budget - 97,511

	NAVY	ASW
Shipbuilding and conversion	3,954	1,545
Proc. of aircraft	2,978	811
Proc. of weapons	1,121	194
Other procurement	1,570	328
RDT&E	3,314	400
Total budget	31,480*	3,278**

Selected  
FY 1976 Budget  
(\$ Millions)

Total DOD Budget - 22,544

	NAVY	ASW
Shipbuilding and conversion	447	189
Proc. of aircraft	586	75
Proc. of weapons	311	20
Other procurement	1,838	101
RDT&E	842	107
Total budget	7,102*	492**

Selected  
FY 1977 Budget  
(\$ Millions)

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

In the Congressional hearings held in 1975 Chief of Naval Operations Admiral James L. Holloway\* continued to

\* CNO from 29 June 1974 to the present.

Admiral  
Holloway

present the Soviet submarine threat in terms of the overall Navy sea control mission:

The Integration  
of Warfare

Modern sea control capability depends on the ability to conduct fully coordinated offensive warfare in three basic areas: air, surface, and submarine. We concentrate on destroying hostile delivery platforms in all three areas. With the advent of the tactical (cruise) missile--which may be launched from nearly all platforms--we are also concentrating on the ability to defeat the incoming weapons themselves. No longer is there a clear distinction among the major warfare areas, for success in combat increasingly depends upon the coordinated employment of all forces available against a multi-faceted threat. Timely warning of the potential threat, provided by modern ocean surveillance systems, can greatly enhance the combat effectiveness of our offensive forces. (HACH, 94:1:2, 18 March 1975, pp. 414-415.)

Similar  
Presentations

With the exception of the problems caused by the Soviet cruise missiles, this was basically the same presentation of the mission of the U.S. Navy that was given to Congress in the early fifties when Congress became alarmed about the Soviet submarine building program and the Navy's present and future ASW capability to deal with that particular threat. After 1956 it became increasingly difficult to separate the discussion of ASW from the larger mission of sea control. Although Admiral Holloway was not as pessimistic as Admiral Zumwalt in his assessment of the overall Navy capability to carry out its missions in the face of the Soviet threat, he still gave Congress only a qualified "yes" in 1975 concerning the Navy's capability:

A Qualified  
Yes

Qualified, because there are an infinite number of sets of circumstances in which a U.S.-Soviet conflict could be cast. But I consider that today, by a small margin in significant scenarios--particularly those involving vital U.S. national interests--the U.S. Navy could successfully carry out its mission against the Soviet threat, but not without suffering painful losses.

*Congress and Antisubmarine Warfare*

A second qualifier must refer to this particular moment in time. Today we have the forces which provide the capability for marginal success. But further erosion of our force levels--or even maintenance of our status quo--in the face of the continued growth of Soviet maritime capability could reverse the balance of success which currently resides in our favor; and, under these circumstances, the U.S. would no longer be able to prevail at sea in the defense of our most vital national interests. (HACH, 94:1:2, 18 March 1975, pp. 418-419.)

*The Navy's  
Basic Problem*

In 1955 Admiral Burke had outlined the threat posed by the Soviet submarine building program. However, in 1975 the challenge was not numbers as much as it was the improving Soviet submarine capability:

Measured in numbers, the Soviet submarine force has gradually declined in the past ten years, . . . More important than numbers, however, are the increased capabilities evident in the newer submarine types which have become operational. These include the world's largest and fastest submarines and the only submarine capable of submerged launch of cruise missiles. (HACH, 94:1:2, 18 March 1975, p. 419.)

*Soviet  
Submarine  
Improvements*

According to Admiral Holloway's testimony, sea-based airborne ASW remained one of the critical elements in the U.S. ASW capability:

The long range offensive power of our multipurpose aircraft carriers (CVs) is the unequalled and central element of our sea control capability in high threat areas. The carrier air wings are tailored to conduct coordinated offensive operations against hostile aircraft, surface ships and submarines. The impending fleet deployment of the new long range S-3A aircraft will do much to increase our sea-based ASW capabilities. (HACH, 94:1:2, 18 March 1975, p. 415.)

*The Carrier  
Remains  
Supreme*

Selected  
FY 1977 Budget  
(\$ Millions)

Total DOD Budget - 110,190

	NAVY	ASW
Shipbuilding and conversion	6,290	2,399
Proc. of aircraft	3,032	361
Proc. of weapons	2,240	254
Other procurement	2,193	340
RDT&E	3,801	539
Total budget	36,449*	3,892**

\* Includes total Navy budget.

\*\* Includes only ASW acquisition costs.

The reaction of Congress to the testimony regarding current ASW capability is difficult to judge in the short range, but there are several indicators as to the direction which this Congressional reaction is beginning to take. In the House Armed Services Committee hearings held in 1976, Representative Samuel S. Stratton renewed the question of the Navy's internal ASW organization:

Representative  
Stratton and  
Op-95

Admiral, . . . we kept track of what was a serious problem facing the Navy (ASW), and there was a special office in your shop set up, Op-95, I believe it was, to take care of some of the unglamorous but important responsibilities associated with ASW. My spies in the Pentagon tell me that that office has fallen upon bad times. It has been not only downgraded by having a substantial injection of anti-air personnel, but it no longer really has very much clout either with the Chief of Naval Operations or over with the Chief of Naval Material.

I cannot visualize that, with what has happened in the Soviet Navy, that the (submarine) threat is any less. I wonder if you could tell me just where this ASW mission stands in your view? . . .

Admiral  
Holloway  
On Op-95's  
Expansion

ADMIRAL HOLLOWAY: The Office of ASW Executive to the Chief of Naval Operations several years ago was changed to the Director of Antisubmarine Warfare Programs. . . . As the Director of a major staff office on the

*Congress and Antisubmarine Warfare*

staff of the Chief of Naval Operations, he has ready access to me. He does have some other duties in addition to ASW, and this expansion in his charter was deliberate in order to better factor ASW into our overall warfare philosophy. We had to realize, as the Soviet fleet had grown, that it is very difficult to separate out ASW as a completely discrete warfare component. (HASCH, 94:2:1, 2 February 1976, p. 855.)

In a written reply to amplify his remarks Admiral Holloway continued to emphasize that ASW, rather than being a mission in itself, was really part of the Navy mission of sea control:

Naval warfare areas historically were clearly defined as antiair, antisurface, and antisubmarine warfare. However, the passage of time and the advent of the cruise missile, which can be fired from any platform, have broadened the scope of ASW beyond the previously narrowly defined considerations. In adapting to these changes, and excluding strategic warfare systems, we have moved in the direction of looking at ASW from the broader point of view of employing all of our systems and platforms in a manner which utilizes the capabilities of each to contribute to ASW and to the entire naval warfare spectrum insofar as feasible. To this end, it is absolutely imperative that we exercise optimum management of our assets, particularly in this time of reduced force levels and ever-tightening fiscal constraints.

In order to definitize the changed situation insofar as naval warfare areas are concerned, we emphasize the Sea Control mission while devoting our major concentration to ASW considerations within the Sea Control warfare areas. Sea Control is, of course, the primary function of the Navy and is a prerequisite for all other Navy functions.

Recognizing ASW as the most critical part of the Sea Control function, which employs, or may employ, nearly all of the assets available

*Admiral  
Holloway  
Elaborates on  
the Change in  
Warfare at Sea*

*ASW is Part of  
Sea Control*

Op-95:  
Director ASW  
and Ocean  
Surveillance  
Programs

to the Navy, it was logical that the OPNAV office in charge of ASW (Op-095) should be designated the Sea Control mission sponsor in order to better manage our assets. In fact, the current title of Op-095 is: Director of ASW and Ocean Surveillance Programs. This reflects the fact that ocean surveillance is, in turn the cornerstone of ASW. This title change in no way reduces the importance attached to our continuing ASW efforts; in fact, the converse is true as we seek to achieve a full and balanced ASW program in terms of types of sensors, weapons and forces, numbers of forces, personnel capabilities and fiscal resources. (HASCH 94:2:1, 2 February 1976, p. 856.)

## REFERENCES

1. The Congressional Quarterly, The Power of the Pentagon (Washington: Congressional Quarterly Inc., 1972), p. 4.
2. Richard F. Fenno, Sr., Congressmen in Committees (Boston: Little, Brown & Co., 1973), p. 48 quoting from the Congressional Record, (C.R.) No. 102, p. 11128.
3. Fenno, Congressmen in Committees, p. 48; C.R., Daily Edition, 2 March 1965, p. 3866.)
4. Fenno, Congressmen in Committees, p. 197.
5. House Appropriations Committee Report (HACR), 92:1, p. 5.
6. E.B. Potter, Nimitz (Annapolis: Naval Institute Press, 1976), pp. 427-428
7. Congressional Record (C.R.), 79:1, 12 April 1945, p. 1706
8. House Appropriations Committee Hearings (HACH), 79:1, 14 March 1945, p. 38.
9. Congress and the Nation, Vol. 1, 1945-64 (Washington: Congressional Quarterly, Inc., 1965), p. 243.
10. Congress and the Nation, Vol. 1, 1945-1964, p. 245.
11. United States Naval Aviation: 1910-1970, NAVWEPS 00-80P-1, pp. 187, 241.
12. Senate Appropriations Committee Hearings (SACH), 80:1, 11 June 1947, p. 21.

*Congress and Antisubmarine Warfare*

13. RADM C.B. Momsen, ACNO (Undersea Warfare), "Undersea Warfare Presentation to Congressional Budget Committee" 18 February 1949, Op-312 File, Washington National Records Center, pp. 2-5.
14. House Armed Services Committee Hearings (HASCH), 81:2, 25 April 1950, pp. 5952-5953.
15. Congress and the Nation, Vol. 2, 1965-1968 (Washington: Congressional Quarterly, Inc., 1969), p. 829.
16. The Changing Strategic Naval Balance: U.S.S.R. vs. U.S.A. (Washington: Government Printing Office, 1968), pp. 11, 14.
17. Congress and the Nation, Vol. III, 1969-1972 (Washington: Congressional Quarterly, Inc., 1973), p. 191.
18. Admiral Elmo R. Zumwalt, On Watch (New York: The New York Times Book Co., 1976), pp. 75-76.

## APPENDIX C

## The Atlantic U-boat War

## Phase I: 3 September 1939 - 31 May 1940

Early German Strategy

War with Great Britain came too soon for the German navy. Under the "Z" Plan, the massive 1939 construction program aimed at producing a modern, balanced fleet, Hitler had ordered Grand Admiral Erich Raeder, the Commander in Chief of the Navy, to be ready for war by 1945. Thus when hostilities began on 3 September 1939, the Kriegsmarine was hard pressed to match superior British sea power. In the opinion of Flag Officer, U-boats, Admiral Karl Doenitz:

*German Navy's  
Problems at the  
Outset of War*

In fall 1939 we lacked sufficient means to fight a war effectively in the decisive Atlantic Theatre. The war should have been avoided politically; under all circumstances.<sup>1</sup>

Speaking more specifically, Doenitz recorded in his War Diary of September 1939:

It is evident from the political situation and from Britain's inherent tenacity that this will be a long war.

Britain is completely dependent on her sea trade for food and raw materials, and above all for building up her military strength. The German Navy's task therefore is to attack the merchant ships carrying these supplies and, if possible, to disrupt them. This means that, despite the unfavourable strategic position of our Navy and its considerable inferiority in strength, the battle must be actively waged from the first day.

*The Atlantic U-boat War*

No effort on the part of Germany could enable her to catch up with Britain's immense lead in naval construction. Germany cannot hope to compete for naval supremacy. Her only course is to launch a direct attack on enemy sea communications. Apart from the few surface ships fit for long-range operations, only the U-boats are available for this purpose. They alone are capable of penetrating to the main British trade routes in face of the British superiority in surface forces.

. . . We have today the totally inadequate number of 57 commissioned U-boats,\* and an inadequate construction programme. Neither the existing forces nor those to be expected from the building programme are sufficient to obtain decisive results against British shipping.

*Tasks Facing  
the U-Boat  
Command*

Thus three tasks face the U-boat Command:

(a) To plan and to carry out large-scale expansion so that it may be possible to disrupt British sea trade during a war expected to be of long duration.

(b) To dispose the available forces for maximum results at an early date.

(c) The operational control of the available forces.<sup>3</sup>

But Doenitz's most urgent priority, the rapid expansion of the U-boat arm\*\*, was initially not given total support by Hitler, who until the spring of 1943 placed more

\* Of the fifty-seven commissioned U-boats, only forty-six were operational when war began. Of the forty-six only twenty-two were ocean-going types. The types of U-boats available for operations in September 1939 were as follows: twenty-four Type II (coastal boats (250 tons)), sixteen Type VII (770 tons), six Types I and IX (900-1,000 tons).<sup>2</sup>

\*\* In a memorandum to Grand Admiral Raeder dated 28 August 1939, Doenitz stated: "Our main weapon is the torpedo-carrying submarine; in the type VII and IX we possess boats well suited to our purpose." Doenitz went on to say that in order to attain decisive results in the Atlantic theater he would need to maintain at least 100 operational U-boats there, which he felt would require a fleet of at least 300 submarines.<sup>47</sup>

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S-B/A  
ASW

*The Atlantic U-boat War*

emphasis on the development of his land and air forces. As Doenitz later wrote:

That U-boat construction did not receive strategically necessary priority over the years 1939-43, that it was hampered by insufficient allocation of materials (steel) and diversion of men and machinery to other tasks, is an essential reason for our defeat in the Battle of the Atlantic.<sup>6</sup>

Initial U-boat Operations in the Atlantic

Correctly assuming that even the immediate institution of a convoy system by the British would leave large numbers of non-convoyed ships, Doenitz decided that initially the few available U-boats would be most effective conducting individual attacks on independent shipping in the waters immediately surrounding the British Isles: "Even if the British Government were to order convoy at once, it would not come into full effect in the first days of the war. The important thing is to catch the ships not in convoy at once."<sup>4</sup> In this way, Doenitz hoped to carry on some form of offensive from the first day of the war, but still preserve the few existing boats, while building up his forces in preparation for the day when they would be forced to face more heavily escorted convoys.

*Doenitz's Early  
Strategy*

The small number of U-boats with which Germany began the war greatly hindered her anti-shipping offensive. Indeed, for the first eighteen months U-boat losses outnumbered new construction, so the size of the fleet actually declined, reaching an operational low of twenty-one boats in February 1941. As a result, during that period an average of only about six U-boats per month were able to be maintained at sea in their Atlantic operational areas.

*Not Enough  
U-Boats*

The effectiveness of the few available U-boats was further limited by their employment, until May 1940, of unreliable torpedoes. The torpedo failures were the result of inadequate depth-keeping qualities which often caused the torpedo to run harmlessly beneath its target, and faulty firing mechanisms, particularly in the magnetically-fused torpedoes. It was only gradually that these deficiencies became known to the U-boat Command, which in its efforts to correct the problem issued a series of contradictory instructions on attack procedure that in effect

*Torpedo  
Failures*

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*The Atlantic U-boat War*

caused considerable confusion and doubt among the operational U-boat forces between the outbreak of war and April 1940. Finally, on 20 April Raeder established a torpedo commission to investigate the claims of the U-boat command that it was not their attack and firing procedures that needed improvement, but the torpedoes they were using. Eventually, on 23 July 1940 the commission concluded that the torpedo department had been negligent in its prewar preparation of torpedoes, a decision that led to the court-martial of several key officers of the Torpedo Experimental Institute.

While the investigation of the Torpedo Commission was underway Doenitz virtually abandoned the use of the magnetic fuze,\* replacing it with the World War I contact fuze. Still, the difficulties with the depth-keeping qualities of the torpedo continued, limiting its effectiveness until early 1942 when the crew of U-94, conducting an at sea torpedo inspection which was against regulations, found an excess of pressure in the balance chamber of their torpedoes which adversely affected the depth-keeping mechanism. The problem was soon corrected, and by mid-1942 the submarine-borne torpedo was at last an effective anti-shiping weapon.

*Prize  
Regulations*

Finally, the initial U-boat offensive was further restricted until 17 August 1940 by Hitler's adherence to the Prize Regulations, which were enforced primarily to keep the United States neutral, and defined certain conditions under which unlimited submarine warfare could not be practiced. Basically, the Prize Regulations required that the U-boats operate in the same manner as surface ships when attacking shipping outside the zone of unrestricted warfare. This meant the U-boat had to stop and examine the prospective targets, determining whether or not the ship could be sunk, and ensuring the safety of the crew before the ship was destroyed.

The combination of the low number of available U-boats, unreliable torpedoes, and the enforcement of the Prize Regulations placed a severe handicap on the initial U-boat offensive. This was a very fortunate consequence

\* It was not until December 1942 that a successful version of the magnetic fuze, the Pi 2, became available in quantity.

*The Atlantic U-boat War*

for the British, whose ASW equipment and training at the outset of the war was largely of World War I vintage.

Early British Strategy

The British strategy in this first phase was, like the German strategy, limited by the forces available. When war began the British were not prepared to defend their merchant shipping against the German submarine threat--the result of prewar policies that overestimated Britain's ASW capability and did not anticipate the intensity and scope of the eventual German attack on merchant shipping. The key factor in the sequence of events that led to Britain's initial deficiencies in ASW was their own development, prior to World War II, of the hull-mounted ASDIC (sonar). In 1937 the Shipping Defense Advisory Committee was informed: "The submarine menace will never be . . . what it was before. We have means (ASDIC) of countering a submarine which are very effective and which will normally reduce our losses from that weapon. It will never be . . . a fatal menace as it was in the last war. We have taken effective steps to prevent that."<sup>5</sup> Although ASDIC itself was not effectively neutralized until the Germans adopted large scale surfaced submarine operations between the fall of 1940 and the spring of 1941 (and then only temporarily), Britain's exaggerated prewar reliance on ASDIC as the cure-all to the U-boat problem was an essential reason for her lack of preparedness in other ASW areas.

*British ASW  
Initially  
Deficient*

*Overreliance  
on ASDIC*

In addition to their overreliance on ASDIC, the British believed before the war that the maintenance of an unrestricted submarine campaign in waters beyond the Western Approaches was an unlikely possibility. As a result, until shortly before the war began, the Admiralty prepared itself to institute only a coastal convoy system. Thus, when war came and events saw the U-boat campaign progress westward to the mid-Atlantic, the ocean-going surface escorts and long range aircraft needed to protect shipping beyond the Western Approaches were not available in the numbers required, and could not be improvised.

*Lack of Long-  
Range Escorts*

Finally, believing ASDIC and a coastal convoy system would control the U-boat threat to merchant shipping, the British concentrated their ASW effort between the wars on the protection of naval forces and military convoys by ASDIC-fitted destroyers against daylight attacks by submerged submarines. Aircraft were to play only a supporting role in this scheme, providing the fleet with

*The Atlantic U-boat War**Insufficient  
Training*

reconnaissance but having no direct ASW responsibility.\* As a result, when war began Britain's air and surface ASW forces lacked training and experience in the highly specialized task of protecting merchant shipping from submarine attack. This deficiency was most evident in the RAF's Coastal Command, upon whom the brunt of airborne ASW responsibility fell. At the outset of the war Coastal Command had neither suitable weapons, suitable aircraft, nor trained air crews for ASW. As war experience soon highlighted these deficiencies, effective steps were taken that eventually provided the Coastal Command with adequate ASW capability. However, progress was slow, and the result was that until mid-1942, the value of aircraft in ASW was mostly limited to the neutralizing effect of forcing U-boats to remain submerged.

*Britain's Initial ASW Defense**ASW Patrols  
Rather Than  
Convoy Escort*

The British instituted the convoy system on the first day of the war, but as Admiral Doenitz predicted, many ships were left unconvoyed. Lacking sufficient air and surface forces\*\* to provide what it felt was adequate protection to each convoy, the Admiralty concentrated much of its initial antisubmarine effort on defensive patrols in ship-congested areas, or on intensive offensive searches with ASDIC-equipped vessels over the known U-boat transit routes. Augmenting these surface patrols, the British fleet aircraft carriers\*\*\* *Courageous* and *Hermes* in the Southwest Approaches, and *Ark Royal* in the Northwest Approaches, were employed defensively in an effort to provide air antisubmarine cover for the many unconvoyed ships at certain shipping focal points not covered by the RAF's Coastal Command. However, after several torpedo attacks on the *Ark Royal*, and the sinking of the *Courageous* by U-59 on 17 September 1939, the Admiralty decided the fleet carriers were too valuable to be employed in fixed

\* Thus the great defensive success aircraft achieved in providing ASW protection to merchant convoys in World War I was not fully appreciated, and there was little development in airborne ASW between the wars.

\*\* Britain began the war with 180 ASDIC-fitted vessels. 150 of these were destroyers, the majority of which were employed with the fleet or on ASW patrols, and not for convoy escort. The Coastal Command began the war with 296 aircraft, though only about half that number were operational on any one day. In addition, most of the aircraft were outdated Avro Ansons, Short Stranraer biplanes, Saro Londons, or Vickers Vildebeests. The only modern aircraft in Coastal Command's force were one squadron of Lockheed Hudsons and two squadrons of Short Sunderlands.

\*\*\* The carrier's air complement consisted of Blackburn Skuas and Fairey Swordfish.

*The Atlantic U-boat War*

patrol areas where they were vulnerable to concentrated U-boat attack. Still, the early use of these carriers for merchant protection demonstrates that the idea of providing sea-based airborne ASW protection to shipping was at least conceived at this time, though the risk was too great to commit the few carriers then available to that duty.

General Summary of the First Nine Months

The U-boat war up to the fall of France in June 1940 was a much more limited affair both logistically and geographically than the extensive campaigns that were to follow. The German submarine threat was limited to a handful of ocean-going U-boats of which there were too few to effectively employ the wolf pack tactics that characterized their efforts for most of the war. By attacking the large numbers of unescorted independent merchant ships with individual U-boats, Doenitz strategically kept submarine contact with ASW forces minimal, making an early evaluation of the effectiveness of Britain's limited ASW forces and the convoy system difficult. One important point that can be made about these first nine months is that the antisubmarine patrols, operating without intelligence on U-boat locations, were futile. The few U-boats they sank were not worth the large effort spent, especially when compared with the success achieved by the limited numbers of convoy escorts.\* Finally, the early action demonstrated that both sides began the war unprepared for the major submarine conflict at sea that was to follow.

*U-Boat War  
Limited Until  
June 1940*

*ASW Patrols  
Futile*

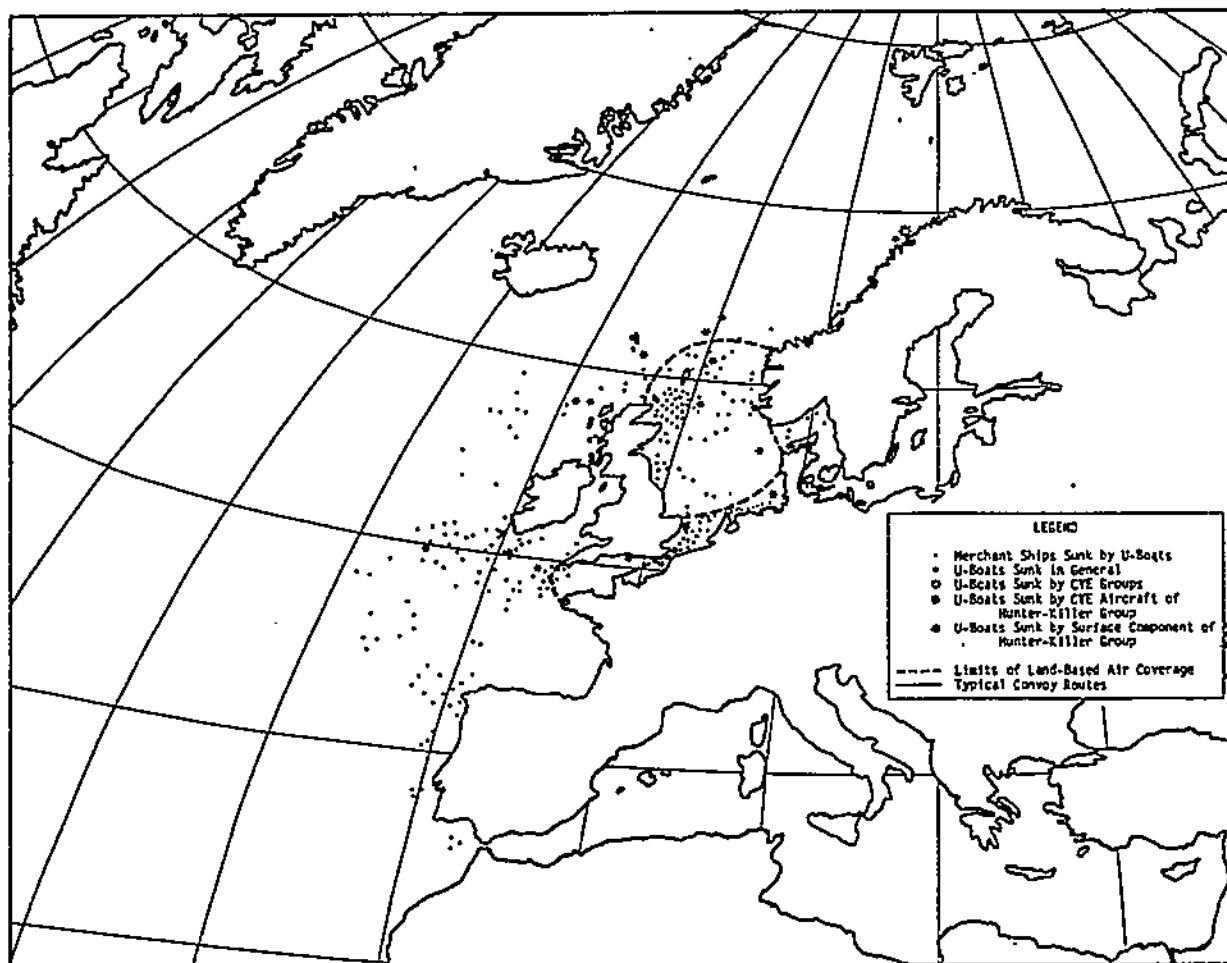
For the Germans this unpreparedness involved not only an initial lack of submarines, but more importantly, the failure of their political and military leadership to realize, as did Doenitz and eventually through his urgings Raeder, the utmost strategic importance of the Battle of the Atlantic to Germany's overall war effort.\*\* Consequently, it was not until the spring of 1943, the climax in the Battle of the Atlantic, that U-boat construction received top priority in German war production, a strategic error from which the U-boat fleet would never recover.

*German Lack of  
Emphasis on  
the Battle of  
the Atlantic*

\* In terms of submarines sunk, the British offensive antisubmarine search/patrols destroyed only four submarines by June 1940, while during the same period in the same general area no more than four U-boats sank seventy-six merchant ships. In contrast, merchant convoy escorts sank seven U-boats in exchange for only fourteen convoyed ships being lost.

\*\* A case in point is that from early March through April 1940 the majority of the U-boat fleet was assigned to support the Norwegian campaign and was not available for merchant raiding operations.

## The Atlantic U-boat War



Date	Merchant Losses				U-boats Lost
	In Convoy	Stragglers	Independent	Total	
1939 Sept	0	1	39	40	—
Oct	2	2	23	27	—
Nov	2	1	15	18	—
Dec	1	1	16	18	—
1940 Jan	3	1	26	30	—
Feb	3	2	30	35	—
Mar	0	0	15	15	—
Apr	1	0	5	6	—
May	2	0	8	10	—
Total	14	8	177	199	—

Phase I Situation Map and Chart.

*The Atlantic U-boat War*

The British, on the other hand, in addition to lacking sufficient ASW capability, were, even more significantly, unsure of the best way to combat the U-boat threat. Despite the futility experienced by U-boat hunting patrols and the great offensive and defensive success achieved by convoy escorts during World War I, the British were apparently unaware of the full value of the convoy system at the outset of World War II, and thus split their antisubmarine effort between convoy escort and ASW hunting patrols. Had the Admiralty used all the available antisubmarine forces on convoy escort duty, larger numbers of ships could have been convoyed, thereby forcing Doenitz at an earlier date into making more attacks on escorted convoys. Thus the already meager U-boat fleet would have suffered increased losses.

*British  
Unaware of  
the Full Value  
of Convoy*

Geographically, the U-boat war for the first nine months was confined to the waters around the British Isles east of 20 degrees west and north of Gibraltar. This was due to the small numbers of ocean-going U-boats available, the limited range of operations possible from the German bases, and above all the ready availability of unescorted targets in these waters.

**Phase II: 1 June 1940-31 March 1941***The Effect of the Biscay Bases on the U-boat War*

After the Blitzkrieg swept through Norway in April 1940 and France the following June, the complexion and location of the U-boat war changed. The Germans were now able to base both their U-boats and the long-range Focke-Wulf 200 "Condor" bomber-reconnaissance planes in more strategic locations from which they had direct access to the Atlantic and could greatly expand the range of their attack on British shipping.

*June 1940  
The Threat to  
Shipping  
Intensifies*

Based in the French Biscay ports of Lorient, Brest, La Pallice, and Bordeaux, the U-boats were some 450 miles closer to their desired areas of operations--the Southern and Western Approaches to England. Thus the range of their offensive was extended to 30 degrees west and south into the Freetown area of Africa. In addition, the U-boats were able to decrease the amount of time in passage to and from their bases, thus increasing time in the actual operational areas. This favorable shift in bases, though occurring at a time when the size of the U-boat fleet was dwindling due

*U-Boat Range  
and Time in  
Operational  
Areas Increased*

*The Atlantic U-boat War*

to losses, actually increased the number of U-boats able to be maintained in their operational areas by 25 percent each month.<sup>7</sup>

*FW 200's Join  
the Assault*

Operating from France, the four-engined FW200Cs could now patrol some 700 miles out over the Atlantic. Flown into Merignac near Bordeaux shortly after France fell, the Condors began their attack on Atlantic and Gibraltar shipping in August 1940, during which they sank fifteen ships of 53,283 tons and damaged many more. The FW menace was extended to the Arctic when they were flown into Stavanger, Norway the following autumn. Here they were to become equally effective, especially when conducting coordinated attacks with U-boats and surface ships on the vulnerable Arctic convoys.

Designed initially as a commercial transport, the adaption of the FW200 to a combat role was an improvisation forced upon the Germans by their lack of an alternate long-range heavy bomber capable of harassing British shipping far out into the Atlantic. As they initially operated against minimal opposition, the FWs were highly successful during the first two years of war, earning the nickname, "the scourge of the Atlantic." However, as the Allies improved their anti-air protection for convoys the FW's civilian heritage became evident, and its performance was limited by a lack of maneuverability and an extreme vulnerability to both anti-aircraft fire and aerial attack.

*Condor's  
Reconnaissance  
Value Limited*

In addition to their bombing capabilities, the long range Condors also operated as reconnaissance planes, locating and shadowing convoys and homing in other FWs or U-boats for concentrated attack. However, until January 1941 only three FWs were made available to Doenitz on a daily basis, and these operated under Air Force control. As navigation standards were low, the reconnaissance information they relayed to the U-boat Command was frequently in error and seldom useful.

*The U-boat War: June through October 1940**"Happy Time"  
for the  
U-boat Fleet*

From June through October 1940 the U-boats were extremely effective, experiencing what the men of the U-boat fleet called the "happy time,"\* characterized by

\* This term was used to describe those periods of the U-boat war when the German submariners felt themselves equal or superior to Allied ASW defenses. There was only one other such period, the initial operations off the U.S. east coast during the first half of 1942.

①  
Post war

In testimony before Congress in 1946, Captain M.J. Lawrence, Assistant Chief, Office of Research and Inventions, said..."the Navy must pioneer along quite radical scientific lines in order to deal with the submarine of the future which can proceed for weeks at a time completely submerged at speeds probably exceeding that of our present submarine vessels." p 50

In 1947 Admiral Mimitz announced the establishment of the Office of Coordinator of Undersea Warfare (OP-31) and said "...Type XXI U-boat (under development by the Germans when they capitulated) shows that it is harder to detect and kill ~~than the~~ ...and can be expected to sink many more ships ~~in the future~~...This knowledge is now available to the world, causing submarine and antisubmarine development to assume a new importance." p51

VADM A. W.  
/ Radford , DCNO(Air) "...The antisubmarine measures, which are being developed as a countermeasure ( to the Type XXI submarine), place major reliance upon the coordinated effort of the antisubmarine task units composed of land and carrier-based antisubmarine aircraft...." p52

1947 : National Security Act of July 1947 left land-based airborne ASW responsibility primarily with naval aviation. p 55

Feb '49 CNO Adm Louis Denfeld ...."It is essential that carrier aircraft, patrol planes and destroyer types be trained in antisubmarine warfare as teams..... p 57

see page 59 for tactics in 1949

In the hearings held in 1952 for FY 53, both the Executive branch and Congress began to slow the pace of the military buildup begun in 1950

The original Navy budget request was reduced by nearly 1 billion dollars by Congress

2  
Hearings in 52 for FY 53:

CNO Adm William M. Fechteler expressed a stronger concern over the Soviet submarine threat "Lack of proper escort forces in WW II resulted in losses as high as 90 percent on routes leading close to enemy shores. To prevent the delivery of these supplies the Soviets have a submarine force numerically nearly equal to that employed by the German Navy at the height of their submarine ~~war~~ campaign..." p 63

In the fall of 1953 the Grumman twin-engine S2F—the first airplane in the world designed from scratch for the carrier ASW mission. The Bell HSL was cancelled, being replaced by the Sikorsky HO4S helo p 64

Congress and the Republican administration of Pres Eisenhower returned to a moderate emphasis on economy in government, with an austere view of the mil. p64

On 17 Jan 55, the USS Nautilus revolutionized naval warfare with the message "underway on nuclear power." Also Special Projects office established to develop the Fleet Ballistic Missile System. These played a significant part in the congressional attitude toward ASW. Two things: the true submersible that Adm Doenitz had almost attained became a reality, Secondly, the lay impression of SW---classic convoy battles in the mid-Atlantic---was changed. Now the possibility of submarine launched nuclear missiles threatened the Am. continent. p 66

Mid 50's Navy plan still formation and defense of convoys, hunter-killer ops by independent surface and air teams, the later carrier based, attacking home base pens and facilities ; 68-9

mid 50s(55)US: new Forrestal class carrier with Essex classes being converted to antisub carrier (CVS). But Soviet engaged in very ambitious and extensive building program while US in only modernizing. "Block enclosures

was overtaking us suddenly---a large number of ships suddenly becoming overage and obsolete. A building ~~and~~ and replacement program was necessary. ;p70

In 56 Soviet cosntrauciton program hit is peak of annual producation--- conventionals at a rate of 46 per year. Golf and Zulu V classes being armed with ballistic missiles carrying nuc warheads.. Also construction in 56 began with the first nuc propelled of the November class. p 70

In 1956, Adm Arleigh Burke testified "...The Soviets underseas force right now consists of over 400 submarines...Their submarine building program is still accelerating. New snorkel-equipped units have the latest tecnological advances....p 71

~~Although in 1956 the Navy requested a reduction of 10 billion dollars from the FY 57 budget, this year marked the end of the steady decline in Navy funding since the Korean War. From 56 to 65, Navy received substantially more than the Executive branch request from Congress~~

FY 57 some reduction 10 billion request of which 1.3 million for ASW, this year marked the endo of the steady decline in Navy funding since the Korean War. From 56 to 65, Nay received substanding what the the Executive bxnahc request from Congress p 72

Hearing 57--The most significant miliatry advante is that (the nuc poweed sub) can now operate for unrestricted periods below the zone of most probable detection. (RADM F. B. Warder p 73

4. p 75

in 1958 hearings the Navy was still trying to preserve its control over naval aviation in the face of another military reorganization plan ~~which~~ put forth by the ~~the~~ administration which would have empowered the Sec. of Def to alter the missions assigned to the three services. Opposed by Navy and Admiral Burke's testimony was decisive in insuring the passage of a House amendment which would make Congressional approval necessary for any major changes in the service missions. The final reorg bill gave legal recognition to naval aviation and prevented any future attempt by the executive to alter the Navy's basic missions without congressional approval. This, in effect, assured the future of sea-based air. p 75

Budget of FY 59 called for an advanced carrier based aircraft in the airborne early warning field, the E1B, as well as ~~the E1B, as well as~~ ~~the E1B, as well as~~ improved version of existing anti sub patrol aircraft, continued improvement of a turbo-powered ASW helo and the S2F ASW a/c. The final ASW budget totalled 1.67 million, 77 percent above the previous yr.

*The Atlantic U-boat War*

successful individual attacks against unescorted independents. It was during this period that the U-boat aces--Prien, Kretschmer, Endras, and others--achieved their fame. The total sinkings for these five months are impressive: 84 escorted ships\* and 190 unescorted ships, of which 50 were stragglers from convoys. Especially significant is that these results were accomplished with the loss of just six U-boats, only two of which were attacking trade when sunk. This gave an exchange rate of 137 merchant vessels sunk per attacking U-boat lost, a fatal ratio for the British. It should be remembered that during this time there were still only about six U-boats at sea per month. These six sank 284,113 tons (58 ships) of shipping in June 198,825 tons (38 ships) in July, 267,618 tons (56 ships) in August, 295,335 tons (59 ships) in September, and 352,407 tons in October when 63 ships were sunk, 32 of which were lost in convoy. This means that about ten merchantmen totalling just under 60,000 tons were sunk by each U-boat at sea in October, in exchange for the destruction of just one German submarine.

The success enjoyed by the U-boats during this period was limited only by the low number of submarines available, and was the result of two primary factors: the acquisition of the strategically favorable Biscay and Norwegian ports and Britain's concern, after Germany secured the Atlantic bases, with maintaining an adequate defense against the expected sea-launched invasion of England. The British policy with regard to the latter is summarized in the following excerpts from Captain S. W. Roskill's *War at Sea* series:

*Reasons for the  
U-Boats Success*

The defeat of invasion had to take priority over the defence of shipping if, as was certainly believed to be the case, an invasion attempt was imminent.

*Britain's  
Concern with  
German Invasion*

The Home Fleet and the Western Approaches Command were therefore called on to sacrifice flotilla vessels to the southern commands to an extent which greatly restricted the operational capacity of the former and reduced almost to vanishing point the escorts which the latter was able to provide for our Atlantic convoys.<sup>8</sup>

\* Ships in convoy during this period rarely had more than two anti-submarine surface escorts, and many convoys sailed with only one.

*The Atlantic U-boat War*

In addition to the surface forces, the majority of the Coastal Command's aircraft were retained for anti-invasion duty, mostly to provide aerial reconnaissance for the Home Fleet in the English Channel and North Sea.

*Britain's ASW Capability Improves*

By the end of October, the RAF's Hurricane and Spitfire fighters had defeated the Luftwaffe's blitz of Britain and the threat of invasion had eased. Consequently, the British were able to employ more ocean escorts in an anti-submarine role. In addition, British construction of ASDIC-fitted vessels was increasing, and, though the ships being commissioned at this time were mostly "Flower" class\* corvettes unfit for a North Atlantic winter, they were operational in the inner and coastal waters of the Northwest Approaches and were instrumental in driving the U-boats from those areas. Tactically, the growing numbers of surface escorts were now being formed into escort groups in the Western Approaches Command, enabling the ships to remain together and thus become more thoroughly familiar with their own and their group commanders' methods. This was done despite objections from the Admiralty's personnel departments, because the Naval Staff by this time fully realized that successful prosecution of the antisubmarine campaign was dependent on the thorough training of officers and men as individuals and as a cohesive combat unit.

More Surface  
Escorts for ASW

Escort Groups  
Formed

Coastal  
Command  
Concentrates  
on ASW

Advanced  
Escort Bases  
Established

After October Coastal Command was also freed from a strictly anti-invasion role and, despite the lack of suitable bases convenient to the Western Approaches, and insufficient numbers of modern aircraft, began to concentrate more on combating the U-boat. Furthermore, with the establishment of advanced fueling bases in Northern Ireland in July and October 1940, the surface escorts' range was extended to 19 degrees west,\*\* enabling convoys to be routed farther to the west and away from the U-boat bases.\*\*\* When coupled with the practical ASW experience gained from a year of combat, the result of the above was that by the end of 1940 the tide began to turn in the waters immediate to the British Isles and the U-boats were

\* "Flower" class characteristics: 925 tons, 193-205 feet, reciprocating propulsion, 16 knots.

\*\* Prior to July surface escort range was limited to 12-15 degrees west.

\*\*\* Beginning in July 1940 all Atlantic convoys were routed through the North Channel instead of the St. George's Channel.

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*The Atlantic U-boat War*

gradually forced farther westward where they were to experience increased difficulty in locating targets.

*The Wolf Pack System*

Prior to the war, wolf pack tactics had been envisioned, developed, and practiced by the U-boat fleet as Doenitz had recognized that, in an unrestricted submarine campaign against merchant shipping, the British would revert, as they had in World War I, to the convoy system. In September 1939 the U-boat Command had experimented with shore-controlled pack attacks against convoys, but due to a lack of U-boats, little air reconnaissance support, and the ready availability of unescorted independents, this effort was temporarily discarded. By September 1940, however, the increased number of ships sailing in convoy, coupled with the growing number of convoy escorts and the evasive westward routing of the convoys, were making individual U-boat operations less effective, and pack tactics were tried again, this time out of necessity. As the U-boats were gradually driven from British home waters between autumn 1940 and early 1941, Doenitz employed the wolf pack system to a greater degree. By the end of February 1941 it was the primary mode of U-boat operation.

*Autumn 1940-  
Spring 1941*

*U-Boats Forced  
from  
Individual to  
Pack Operations*

Originally under the pack system, U-boats were loosely organized in very general areas, but as combat experience was gained, certain attack groups were formed with each submarine having a special role in its group. The first boat to make contact with a convoy would shadow it, alerting Doenitz's headquarters in France, then homing in other U-boats of the pack until there were sufficient numbers to attack. The feeling was that the more U-boats that attacked the convoy the more ships would be sunk and the more dispersed and ineffective the escorts would be, thus making it safer for each U-boat.

To the extent which it was possible, the German shore command coordinated the wolf pack attacks, instructing each individual U-boat commander, providing available intelligence, and sometimes sending homing signals. Thus, in his efforts to exercise what he felt was a necessarily high degree of control over U-boat operations, Doenitz was forced to rely heavily on coded wireless communication—a dependence that eventually was fully exploited by the Allies.

*Shore Control  
of the Wolf  
Pack*

*The Need for Air Reconnaissance*

Forced to employ the wolf pack system, Doenitz felt the few U-boats available were not capable of locating the evasively routed convoys alone:

Doenitz  
Requests  
Additional Air  
Support

The war has shown that the use of U-boat packs against convoys is right and can be very effective. However in every case contact with a convoy was achieved only by chance. Should no convoy approach them, the boats might be at sea for days without result. They waste their time in the operational area, unable to make the most of their striking power. The power to dispose the aircraft for reconnaissance must lie with the Command for which they are working. Further cooperation once a convoy is sighted, such as shadowing and the sending of homing signals by aircraft at daybreak, must be directed by the Command in charge of the convoy action. This will not interfere with tactical control by the flight commander. In other words, F.O. U-boats (Doenitz) must determine the reconnaissance area and the number of aircraft required; he must be able to direct all forces in order to ensure an effective, unified operation.<sup>9</sup>

U-Boat-Aircraft  
Cooperation  
Never Fully  
Realized

Finally, in January 1941 Doenitz was able to persuade Hitler of the necessity of air reconnaissance for successful convoy interception. On the seventh of that month a squadron of twelve FWs was placed under his control, much to the despair of the Luftwaffe's commander, Field Marshal Goering, who saw this as the beginning of a Naval Air Arm, a move he had long opposed.<sup>10</sup> But as the U-boat war gradually moved westward, away from Allied air cover, it also outdistanced the long range FWs. Thus, for much of the Atlantic war Doenitz was unable to use aircraft in close and efficient cooperation with his U-boats--a very significant disadvantage.

*The Adoption of Night Surfaced Wolf Pack Attacks*

The wolf pack system of locating, shadowing and attacking convoys required more speed than the six knots possible in submerged operations. Higher speed (17 knots) was attainable on the surface, but this could be extremely hazardous in daylight. Consequently, the development of

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ASW

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pack tactics included the development of night surface attacks. By employing night, surfaced pack attacks, the Germans created a different kind of submarine threat, one not anticipated by the British and against which they had developed no countermeasures. Operating in this fashion throughout much of the war, the U-boats were in reality submersible torpedo boats against which conventional Allied antisubmarine weapons and tactics, designed to counter a submerged threat, were virtually useless.

*The Development of Night  
Surfaced U-Boat  
Operations*

Fortunately for the Allies, there were certain inherent weaknesses in the wolf pack system that prevented its advantages from being fully developed by the U-boat fleet. Of primary significance, the wolf pack had to locate the convoy or the boats would spend long periods at sea while accomplishing nothing. But with so few U-boats available, and with the problems Doenitz was having obtaining adequate air cooperation, this often proved difficult.\* Secondly, once the convoy was located, the whole attack procedure became dependent on the shadowing U-boat. If it could be forced under, or otherwise driven off or destroyed, there was a good chance that the full pack would never locate the convoy. Thirdly, as has been seen, the wolf pack system necessitated frequent coded wireless communication between the U-boats at sea and Doenitz's headquarters in France. This allowed the position of the U-boats to be generally plotted by Allied shore and ship-based high frequency direction finders or, when the U-boat cipher was penetrated, for the contents of the messages themselves to be read. Finally, the whole wolf pack system made the U-boats dependent on the surface for mobility and communication. Eventually it was the Allies' exploitation of this dependence that resulted ultimately in the total defeat of the conventional World War II submarine.

*Disadvantages  
of the Wolf  
Pack System*

*The Focke-Wulf Threat and Sea-Based Air*

As the U-boats were gradually changing their method of operation, the long-range FW bombers were achieving greater successes in their anti-shipping offensive, particularly in the operations against independents. By late 1940 the British Naval and Air Staffs had become very concerned with developing a counter to the FW threat. A series of meetings were held on this subject in November and

*British  
Concerned with  
Countering the  
FW*

\* When available, accurate radio intelligence on convoy locations obtained from the decryption of Allied wireless transmissions solved this problem. But this was by no means a constant factor that could be confidently relied on by the U-boat Command.

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December 1940. The result was two-fold: the fitting of a special anti-aircraft ship, *HMS Crispin*,\* with a primary mission of "destruction of the FWs"; and the employment of an old WWI seaplane carrier-turned-catapult ship, *HMS Pegasus*, with the same anti-air mission. *Pegasus* sailed with an outbound Gibraltar convoy on 3 December 1940, carrying three Fulmar fighters which could not be retrieved after launch. Her aircraft were to be catapulted "at the discretion of the C.O.," and were instructed to land at the nearest friendly aircraft base or, as a last resort, in the sea. The idea of catapult ships for convoy defense was fully endorsed by the Air Ministry, which recognized the limitations on the areas where shipping protection could be provided by their own land-based aircraft.

#### Catapult Ships Proposed

Later in December the Admiralty, realizing that only one catapult ship would be of little overall significance, secured from the Ministry of War Transport a list of merchant vessels suitable for conversion to catapult ships. The five ships selected were already in line for some type of conversion, as the tight shipping situation did not allow for new design and construction of specialized catapult types.

#### Fighters For Convoys

At the same time work on these began, the Director of Air Material, Captain M. S. Slattery, (RN) put forth a new, longer term proposal for sea-based anti-air defense which was to evolve into one of the chief trade protection measures developed during the war. Recognizing the present and future implications of the FW threat, Slattery wrote, "It would be a serious matter if our convoys are to be shadowed and even bombed in Mid-Atlantic and we shall be unable to meet this menace by shore-based fighter protection. . . . no time should be lost in developing a means of fighter protection for convoys."<sup>12</sup> Slattery's proposals, "the fitting of a catapult to suitable merchant ships," and "the fitting of the simplest possible flight deck and landing equipment to suitable merchant ships" were to eventually result in the British development of catapult aircraft merchant ships (CAM ships), merchant aircraft carriers (MAC ships), and most importantly, escort

\* *HMS Crispin*, operational on Christmas Day 1940, escorted seven convoys in the Western Approaches before she was sunk by U-boat torpedoes on 3 February 1941. The ship was a disguised merchant ship designed to fall behind a convoy, simulating a straggler in an attempt to decoy attacking aircraft into its anti-aircraft battery. She never fired her guns against any German aircraft.<sup>11</sup>

*The Atlantic U-boat War*

carriers.\* Based on Slattery's recommendations, the Admiralty decided that the fifth of the selected catapult conversions, the ex-German cargo liner *Hannover* (renamed *HMS Audacity*), be fitted with a full flight deck and known as an Auxiliary Aircraft Carrier.<sup>13</sup> Work on her began on 17 January 1941, and she entered active service in September of that year.

*HMS AUDACITY  
Conversion  
Commences*

*U-boat Operations November 1940 - March 1941*

With the gradual adoption of wolf pack tactics during the winter of 1940-41 the need for additional U-boats became most acute. With only six submarines available for operations each month, it was difficult to maintain even one wolf pack patrol group. Still, with the improvements in Britain's ASW defenses, individual U-boat operations close to the British Isles were no longer practical. Thus, during these months the U-boats were usually deployed in a loosely organized pack in areas designated by aerial or radio intelligence. As these intelligence reports were only occasionally complete and accurate, U-boat warfare became largely dependent on chance encounters with Allied shipping. Consequently, U-boat successes declined sharply during these five months, totalling 168 merchant ships sunk, or about 61 percent of the total achieved in the preceeding five months. In addition, British ASW forces destroyed seven U-boats, giving an overall exchange rate of twenty-four merchant vessels sunk for each U-boat lost.

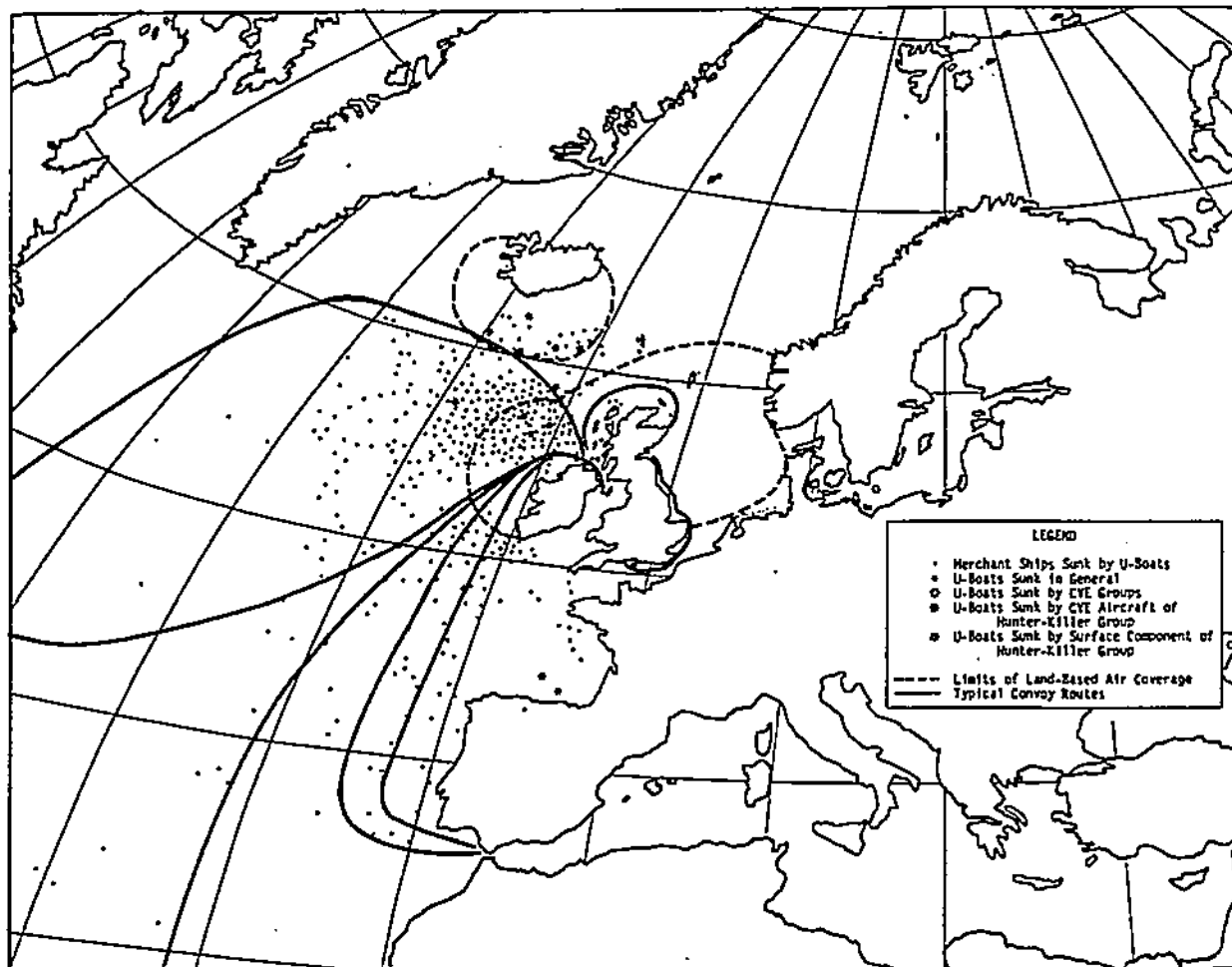
*Lack of U-Boats  
Limits Wolf  
Pack Operations*

*Summary of Phase II*

Operationally, during this second phase the German U-boat fleet succeeded in increasing its effectiveness by sinking more merchant shipping while suffering fewer losses. Of the 442 merchant vessels sunk by U-boats, 214 were independents, 128 were in convoy, and 100 were stragglers from convoys. In achieving these results, the Germans lost thirteen submarines, eight to surface vessels escorting convoys, two for unknown reasons, one to a submarine, one to a mine, and one from the combined efforts of land-based aircraft and a surface escort. Thus, thirty-four merchant vessels were sunk for each U-boat destroyed. The convoy battle was much closer, as only fourteen merchant vessels were destroyed for each U-boat sunk--a

*U-Boats More  
Effective*

\* In an apparently separate development the U.S. Navy initiated its own escort carrier construction program based on the prototype *USS Long Island* (CVE 1), developed between March and June 1941.



Date	Merchant Losses				U-boats Lost
	In Convoy	Stragglers	Independent	Total	
1940 June	11	3	44	58	0
July	6	5	27	38	2
Aug	16	16	24	56	3
Sept	19	13	27	59	0
Oct	32	13	18	63	1
Nov	9	12	10	31	2
Dec	4	11	22	37	0
1941 Jan	3	5	13	21	0
Feb	9	16	13	38	0
Mar	19	6	16	41	5
<b>Total</b>	<b>128</b>	<b>100</b>	<b>214</b>	<b>442</b>	<b>13</b>

Phase II Situation Map and Chart.

*The Atlantic U-boat War*

demonstration of the offensive and defensive advantages of the convoy system. The month of October 1940 marked a low point for British ASW and may be considered a critical period as sixty-three ships were sunk, thirty-two of which were in convoy, in exchange for the destruction of just one German submarine.

Overall, the British suffered a defeat during this second phase, though it can be said, at least, that the worse had been faced and things were beginning to improve. With the combination of increasing numbers of ASDIC-fitted surface vessels and antisubmarine aircraft becoming available, practical ASW experience gained from the first nineteen months of war, operational tactics involving convoys and escorts improving,\* and the introduction of radar,\*\* Britain's overall antisubmarine capability was constantly increasing.

*... But  
British ASW  
Improved*

The second phase of the submarine war closed with the U-boats increasingly dependent on the wolf pack system to locate and attack the British convoys. In February 1941 the employment of this form of submarine warfare was accelerated as U-boat production at last exceeded U-boat losses. But for now the increases in operational U-boats was slow, and with less than thirty submarines at his disposal Doenitz could not hope to attain decisive results, particularly in the face of Britain's greatly improved ASW capability. Thus, even after February, when the numbers of U-boats began to increase sharply, U-boat effectiveness when down as British surface and air forces drove the U-boats farther to the west, and convoys became more difficult to locate.

*Lack of U-Boats  
Still the Most  
Significant  
Factor*

\* As the war progressed and the British began to understand the value of the shadowing U-boat to the success of a wolf pack attack, it was realized that the "close" escort given convoys by air and surface forces was of little use in preventing the pack from forming. Thus, as practical experience was gained, the escorts patrolled at greater distances from the convoy where they intercepted the shadowing U-boats earlier and had more success in disrupting the U-boat attack procedure.

\*\* The British had been experimenting with radar since before the war. By January 1940 twelve Hudsons of Coastal Command had been fitted with ASV (Air to Surface Vessel) Mark I (metric wavelength), but the device had many teething troubles and was only barely effective. Between November 1940 and the end of May 1941 the first ship-based radar (RDF Type 286M) had been fitted into about forty destroyers of the Western Approaches Command. However, it was of little use when escorting convoys because the large number of ships caused confusing "back echos." In addition, as with the airborne ASV Mark I, the lack of trained operators and technicians and the scarcity of spare parts limited the effective use of the early types.

Geographically, during this second period the U-boat war expanded westward and southward--a pattern that was to become increasingly more apparent as the war progressed. Initially, as has been seen, this was due to the Germans' attaining the more strategic Biscay bases. Later, it was the result of improvements in Britain's ASW defense system, which gradually convoyed more ships, evasively routed the convoys farther north and west, and in general made U-boat operations in the waters immediately adjacent to the British Isles too hazardous to be profitable.

### **Phase III: 1 April-31 December 1941**

#### *The Establishment of Escort Bases on Iceland*

*Spring 1941*

*The U-Boat War  
Progresses  
Westward . . .*

With the destruction of five U-boats by surface escorts in March 1941 in the Northwest Approaches, Doenitz was forced to concentrate the U-boat offensive farther westward, out of the range of Britain's air and surface convoy escorts. The British then countered with the establishment of escort bases on Iceland in April 1941, increasing the range of convoy escort to 30-35 degrees west. As the convoys were routed farther north to stay within range of the Iceland-based escorts, they gained the additional advantage of the lengthening spring and summer daylight hours. This in turn made it dangerous for a U-boat to operate in the night, surfaced method when intercepting and attacking convoys. Thus, the North Atlantic U-boats experienced decreased effectiveness, forcing them to seek their targets elsewhere, again beyond the range of Allied air and surface escorts.

*. . . and  
Southward*

Following the line of least resistance this time, Doenitz moved not only farther west but also farther south into the Freetown area off the west coast of Africa. Here his boats enjoyed initial success in May 1941\* as the bulk of shipping in these waters was either independent or in convoys having only one surface escort. However, the British immediately increased their ASW defenses in the Gibraltar area and routed all but essential traffic clear of the Freetown coast, so that by June sinkings there began to fall off.

\* Thirty-two ships were destroyed in these waters in May.

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ASW

*The Atlantic U-boat War*

*The Adoption of Continuous Convoy Escort*

The westward extension of the U-boat offensive beyond the range of British antisubmarine escort became painfully evident on 20 May 1941 when a group of nine U-boats intercepted and attacked the North Atlantic convoy HX 126 at 41 degrees west and sank nine ships. The Admiralty then decided to introduce continuous antisubmarine surface escort for every convoy across the entire Atlantic. It was understood that this would reduce the average number of escorts per convoy but the British were willing to risk this reduction in an effort to provide some surface cover to all convoys. The system was established in late May by basing an escort force at St. Johns, Newfoundland. In July, a similar system was adopted for the Gibraltar-Sierra Leone convoys.

May 1941

*Continuous  
Convoy Escort  
Introduced*

The end-to-end convoy escort system had been discussed in the Admiralty since 1940 but could not be implemented until the above-mentioned base facilities in Iceland and Newfoundland had been attained and enough escorts gathered. The necessary increase in ocean-going escorts came from several sources. The German invasion of Russia in June 1941 eased the situation in Britain's home waters and consequently freed more air and surface forces for antisubmarine duty. Also, British production of oceangoing corvettes, the addition of ten U.S. Coast Guard cutters under Lend-Lease, and the escorts provided in the Eastern Atlantic by the Royal Canadian Navy made sufficient numbers of surface vessels available for end-to-end convoy escort duty. It is interesting to note that the British felt that U-boat successes had dictated the establishment of continuous convoy escort which they perceived as a defensive measure and did not at the time realize that escorting convoys offered surface and air forces the best chance for encountering, attacking and destroying U-boats.

*Increased  
Numbers of  
Ocean-going  
Escorts*

*Offensive  
Value of  
Continuous  
Convoy Escort*

*The Fighter Catapult Ships and the Catapult Aircraft Merchants*

In April 1941, the four new British fighter catapult ships proposed the previous December became available, but one, the *Patia*, was sunk by bombing on 27 April shortly after her completion. Counting the *Pegasus* which had sailed in December, this left the British with four catapult ships, of which two were employed with the Gibraltar convoys and two with the North Atlantic convoys. Also, on 27 May 1941 the first of the new catapult aircraft merchant

*Fighter  
Catapult Ships  
and CAMs Arrive*

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(CAM) ships to become available for convoy duty,\* the *Michael E*, was ready, and sailed from Liverpool with the outbound convoy OB 327. However, she was sunk in mid-Atlantic on 2 June without ever having launched her aircraft. Only one other catapult launch occurred in 1941, on 1 November, when *Empire Foam* operating in convoy HX 156 catapulted her Hurricane which successfully drove off a FW200. The Hurricane pilot then ditched his aircraft and was picked up by a surface escort.

*Tactical  
Problems with  
CAM Operations*

Throughout the period of CAM ship operation, May 1941 to September 1943,\*\* the civilian captains had difficulty determining the most strategic time to launch the ship's aircraft. Should the Hurricane be catapulted against the first shadowing aircraft or was it wiser to wait and see whether a concentrated attack would follow? Knowing that the pilot would probably have to ditch his plane in the sea, should he be ordered to fly off at sunset, when many of the attacks occurred but when his chances of being rescued were lower? As the civilian captains had no experience in combat operations, these decisions were, for the most part, made on a trial and error basis. The civilian control of the CAM ships, as a result, limited their effectiveness. Especially significant is the fact that at no time did two or more CAM ships of the same convoy conduct coordinated operations.

Operational Intelligence

*Germans Enjoy  
Early  
Intelligence  
Advantage . . .*

Prior to the Admiralty's adoption of an end-to-end escort system for trans-Atlantic and Gibraltar convoys, several developments occurred in the field of operational intelligence that greatly enhanced the defensive capability of the British convoy system. During the first nine months of war, the Germans had enjoyed a clear advantage in intelligence operations. Pertinent to the U-boat war was the successful work of the German intelligence service, the B. Dienst, in "reading" Admiralty wireless traffic. As the British were careless in their use of an outdated manual cipher system, their radio transmissions were frequently intercepted and decrypted. Although this information was

\* CAM ships differed from catapult ships in that they carried their normal cargo and were under civilian control.

\*\* There were only seven CAM ship-operational launches during their entire period of service. These resulted in the destruction of one JU88, one HE111, two HE115s, and two FW200s. In addition, one HE111 and two FW200s were damaged.<sup>14</sup>

*The Atlantic U-boat War*

only occasionally available in time for operational use, it was helpful in providing the Germans with a clear insight into British strategy and tactics and would have been exploited further had more U-boats and better torpedoes been available.

*... but Lack  
the Forces to  
Fully Exploit  
it*

After a change in the Admiralty's operational ciphers in August 1940 the B. Dienst was no longer able to decrypt large volumes of British signals. Still, some coded British messages were broken and read by the Germans and, indeed, on more than one occasion Doenitz used this information as the basis for wolf pack operations. Naturally, with the problems the U-boats were having locating shipping, Doenitz was very interested in any intelligence on convoy locations. However, the great majority of the decrypted Admiralty signals were not read in time for them to be operationally useful.

While the effectiveness of German intelligence declined, the British intelligence organization improved markedly after June 1940. All the conventional sources, agents, air reconnaissance, and the HF/DF network had been expanded and were beginning to contribute a steadier flow of information. As a result, the reports of the Operational Intelligence Center (OIC) proved more accurate and useful than before, and were beginning to be relied on more heavily by the British military establishment.

*British  
Intelligence  
Improves After  
June 1940*

After the spring of 1941, Britain's expanded HF/DF network\* began to produce significant results as the U-boat pack operations necessitated increased radio transmission which could be picked up and generally plotted as bearings by the British shore stations. However, accurate position-fixing of U-boat transmissions beyond 300 miles was very difficult from these shore bearings alone, and the Admiralty recognized that ship-based HF/DF could provide not only early warning of the presence of a U-boat but also accurate information on the direction in which it lay. By July 1941, such a system was in use, but operational inexperience and slow production limited its value until late 1942. Doenitz, though never aware of the ship-based systems until late in the war, realized that shore-based HF/DF was of considerable help to the British, and debated the value of extensive use of radio by his U-boats:

*HF/DF Success*

*Ship-based  
HF/DF*

\* By June 1941 there were Allied HF/DF stations in Iceland, Newfoundland, Bermuda, Freetown, Ascension, Cape Town, and all along the U.S. East Coast.

Doenitz  
Questions  
Extensive  
Radio Use by  
U-Boats

It was of course obvious that as time went on, the British would expand their D/F network and would achieve better results. . . . We had therefore to assume that the enemy would pick up every radio signal made by a U-boat and would be able to locate the boat's position. Every radio signal made, therefore, put us at a disadvantage. But these signals were of equally great value to the U-boat Command and what we had to do was to decide whether radio should or should not be used by U-boats.<sup>15</sup>

U-Boat  
Wireless  
Communication  
Restricted

As it was, the Germans came up with a compromise system in which the U-boats used their radios in varying degrees, depending on whether they were on passage or in their operational areas, and frequently changed wavelengths. But once a convoy was sighted, communication was again frequent, often totalling over 100 messages per day. Thus, despite Doenitz's suspicions, and the measures he enacted, HF/DF continued to provide the Allies with valuable intelligence throughout the war.

Special  
Intelligence

Another area in which German radio transmission played an important role is that of Special Intelligence. The Operational Intelligence Center of the British Intelligence Division was created just prior to the war and assigned the task of "collecting, coordinating, and evaluating" all information on enemy maritime forces. Two of the Operational Intelligence Center's four sections, the HF/DF plotting group and the Submarine Tracking Room, were of great importance to the U-boat war. Another important office that was not strictly naval but worked closely with the Admiralty and OIC was the cryptanalysis office at Bletchley Park (formerly the Government Code and Cipher School). This outfit, using sophisticated techniques including early computer technology, was primarily concerned with decrypting the various German ciphers, the achievement of which eventually provided the Allies with invaluable information on U-boat identity, location and intention.

May 1941  
U-110 Capture  
Provides the  
Key

Prior to May 1941, Bletchley Park had had no success in decoding the large volume of U-boat W/T traffic being picked up by the HF/DF network. However, after the capture of U-110 in May 1941, and the confiscation of her current cipher settings and temporary instructions for changing ciphers, Special Intelligence was available, and the Submarine Tracking Room at OIC was able, for the first

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S-B|A  
ASW

### *The Atlantic U-boat War*

time, to obtain a complete and accurate picture of the whole operational U-boat fleet.

The first offensive operational use of Special Intelligence was made during June 1941 against a German fleet of six tankers and one supply ship which were to aid logistically in the extension of the U-boat fleet into South African waters. Within fifteen days, all seven of these ships had been sunk or captured with the help of decrypted intelligence, and the planned extension was thwarted. Further successes against the U-boat supply line were achieved in November 1941, causing Doenitz to conclude:

We could no longer hope to maintain our U-boats in the Atlantic by means of surface supply ships and tankers. Their task was shortly to be taken over by the submarine tankers, the building of which had been put in hand at the beginning of the war.<sup>16</sup>

Initially the value of Special Intelligence to the Allies antisubmarine effort was largely defensive,\* allowing for threatened convoys to be routed around U-boat concentrations or additional air and surface escort support to be marshaled to them. However, when enough forces became available, Special Intelligence was also used as the basis for offensive Hunter-Killer (HUK) antisubmarine operations. The eventual success of these intelligence-cued HUK operations contributed greatly to the final defeat of the U-boat.

*First Offensive  
Use of Special  
Intelligence*

*Value of  
Special  
Intelligence*

By the end of 1941, the British intelligence operation was in full stride and was providing valuable information to aid in the antisubmarine war. All the conventional sources were contributing efficiently and Special Intelligence was providing a clear picture of German naval operations: "If not always completely up-to-date, our information was now never completely stale, and if one source could not for the moment produce the answer, then another one or a combination of several almost always would."<sup>17</sup>

### *The U-boats' Return to Britain's Home Waters*

The new end-to-end convoy escort system and clever evasive routing of convoys in effect countered the

\* There were also technical advantages in reading U-boat traffic, as many of the decrypted messages contained information regarding the operation of the boat itself, or of new devices being tried out.

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*The Atlantic U-boat War**Convoys Hard to Find*

increases in operational U-boats after February 1941.\* During July only twenty merchant vessels were lost to U-boats in all waters, the lowest total since May 1940. As a result, towards the end of July, in an effort to improve U-boat effectiveness by locating more shipping, Doenitz decided to distribute the majority of his boats in the more ship-congested areas around England; F.O. U-boats had come to the conclusion that without air reconnaissance\*\* in this large mid-Atlantic area results would not be forthcoming until more boats were available.

*U-Boats Return to British Waters*

The attempt to intercept traffic in the west, where routes converge, has been fruitless. Fog and bad weather are largely to blame. From 21st July we shall attempt to locate shipping nearer the English coast. In this area, the lengthening nights will help the boats to evade pursuit, and renewed attempts at direct co-operation with air reconnaissance will be possible. . . .<sup>18</sup>

*Convoy Escorts Too Intense*

The redeployment of the U-boat fleet to British home waters marked a change in the established pattern of extending the U-boat offensive beyond Britain's antisubmarine defenses and demonstrated how desperate the problem of finding the convoys had become. Doenitz was willing to risk his U-boats operating in the face of heavy antisubmarine opposition in exchange for the large volume of targets he hoped they would find there. However, the results of this move soon proved disappointing as the U-boats found an abundance of shipping, but were not able to obtain a favorable attacking position on the surface due to the intensity of the convoy escorts. Consequently, Doenitz ordered his skippers on 13 August to concentrate on attacking the surface escorts whenever possible, leaving the merchant shipping for later. However, the small size, shallow draught, and mobility of the escorts made them difficult targets for the U-boats, especially since a miss invited immediate counterattack. Thus, the policy of attacking the escorts was not followed persistently, and U-boat effectiveness in their operations in Britain's home waters was minimal.

\* The average number of U-boats at sea per month rose sharply between February and July 1941, totaling thirteen in March, nineteen in April, twenty-four in May, and thirty-two in June.

\*\* The FW200Cs' effective range was limited to about 20 degrees west.

*The Atlantic U-boat War**The Atlantic U-boats Are Redeployed to the Mediterranean*

By September 1941 the German Army's situation in their North African drive towards the Middle East had become critical. As a result, Hitler, reacting to the advice of Grand Admiral Raeder, gradually withdrew increasing numbers of U-boats from their North Atlantic operations and redeployed them in support of the Army's Mediterranean campaign. By December 1941 fifty-six of the eighty operational U-boats were either in the Mediterranean or in the area just west of the Straits of Gibraltar. This move, which for the time being virtually abandoned the vital Atlantic campaign, was bitterly opposed by Doenitz, who later wrote:

*September 1941**Critical  
Situation in  
Mediterranean**Hitler Deploys  
the U-Boats  
There*

... (Whether or not) Grand Admiral Raeder thought less of his own province than of the army and air force in his advocacy of the Mediterranean as a strategic center, the result of his pleading had a decisive effect on the course of the war at sea; the Battle of the Atlantic was all but abandoned through the transferral of the most capable part of the U-boat force to the Mediterranean. Our effort in the decisive tonnage war--the race against merchant ship construction by the Anglo-Americans--was relaxed in favor of a mission of secondary strategic importance.<sup>19</sup>

*Doenitz  
Protests*

Indeed, it was a fortunate consequence for the Allies that the U-boats began to be recalled from Atlantic operations in September 1941, because during that month they had achieved their greatest success to date against convoyed shipping. The sustained attacks by several wolf packs on two North Atlantic and two Gibraltar convoys accounted for the destruction of thirty-seven convoyed ships in September and provided a preview of the large wolf pack-convoy escort battles that were to characterize the climactic period of the U-boat war some seventeen months later.

*U-Boats  
Successful  
Against the  
Convoys*

The effect of the gradual reduction of the numbers of U-boats assigned to the North Atlantic convoy routes became evident in October 1941 as only nineteen convoyed ships were sunk. In the next five months the pattern continued, resulting in only fifty convoyed ships being sunk between 1 November 1941 and 30 April 1942.

*Effect of the  
U-Boat  
Concentrations  
in the  
Mediterranean*

*The Atlantic U-boat War*

The concentration of U-boat strength in the Mediterranean area caused the British to temporarily suspend the Gibraltar convoys in late November and concentrate their effort on closing the Straits of Gibraltar to the U-boats through intensified air and surface antisubmarine patrols. These patrols were somewhat effective as they accounted for a total of seven U-boats in November and December 1941.

HMS Audacity*HMS AUDACITY  
Arrives*

Another significant development in the Battle of the Atlantic that occurred while the Germans were gradually shifting their U-boat fleet to the Mediterranean was the advent of the first escort carrier, HMS Audacity. Audacity was commissioned in June 1941, and after a period of working up, she joined the escort group protecting the Britain-to-Gibraltar convoy OG 74 on 13 September. Her primary mission was the defeat of the Focke Wulfs,\* although the Admiralty also established that "if and when this menace has been met and defeated it is suggested that the Empire Audacity might well be used to carry TSR aircraft and so provide a convoy with its own antisubmarine patrols."<sup>20</sup>

*AUDACITY  
proves the  
Value of the  
Escort Carrier*

Although she never employed any TSR (Fairey Swordfish) aircraft during her short three and one-half month career, Audacity proved beyond doubt the value of the small carrier for convoy defense. Her Martlet fighters repeatedly drove off or destroyed shadowing FWs and forced down many U-boats, frequently establishing the submarine's position through RDF so that a hunt by surface vessels could be carried out.\*\* The four convoys she escorted suffered minimal losses despite having only limited land-based air cover and encountering heavy concentrations of U-boats and enemy aircraft. By the time she was torpedoed and sunk by U-741 on 21 December 1941, Audacity had clearly demonstrated the feasibility and effectiveness of projecting sea-based air cover, in the form of the escort carrier, to convoys out of the range of land-based air. Doenitz, realizing the implications of the Allies' employing escort carriers for convoy defense, commented:

*U-741 Sinks  
AUDACITY*

\* In March 1941, the squadron of FWs that had operated out of Bordeaux since January 1941 was increased from twelve to thirty-six. The additions were FW200C2s, a stronger and more reliable version of the original C1s. In February 1941 the FWs began flying regular patrols between Bordeaux, France and Stavanger, Norway, instead of returning to the base of their departure. This in effect increased their area of coverage.

\*\* These coordinated ASW tactics between AUDACITY's aircraft and surface vessels resulted in the destruction of U-131 on 17 December 1941.

*The Atlantic U-boat War*

The worst feature was the presence of the aircraft carrier. Small, fast, manoeuvrable aircraft circled the convoy continuously, so that when it was sighted the boats were repeatedly forced to submerge or withdraw. The presence of enemy aircraft also prevented any protracted shadowing or homing procedure by German aircraft. The sinking of the aircraft carrier is therefore of particular importance not only in this case but also in every future convoy action.<sup>21</sup>

However, despite Doenitz's fears, the Allies had no immediate replacement for AUDACITY. In fact, it was to be some fifteen months before the escort carriers would begin to be available in sufficient numbers to realize their full ASW potential.\*

AUDACITY'S  
Loss  
Irreplaceable

Summary of Phase III

At the end of 1941, the British could be more optimistic about their antisubmarine campaign than at any time since the war began. Operationally, the situation on the vital North Atlantic convoy routes had eased greatly, the majority of the U-boats having been withdrawn to the Mediterranean where, despite Doenitz's protests, Hitler felt they were more urgently needed to support the North African penetration towards Egypt and the oil of the Middle East.

Besides the improved situation on the trans-Atlantic routes, the British had also made technical and tactical advances in ASW, most notably in the fields of ship and airborne radar, improved antisubmarine weapons and tactics, and intelligence. Briefly stated, the significant developments in surface ASW by the end of 1941 not previously mentioned included:

British  
Optimistic  
About ASW

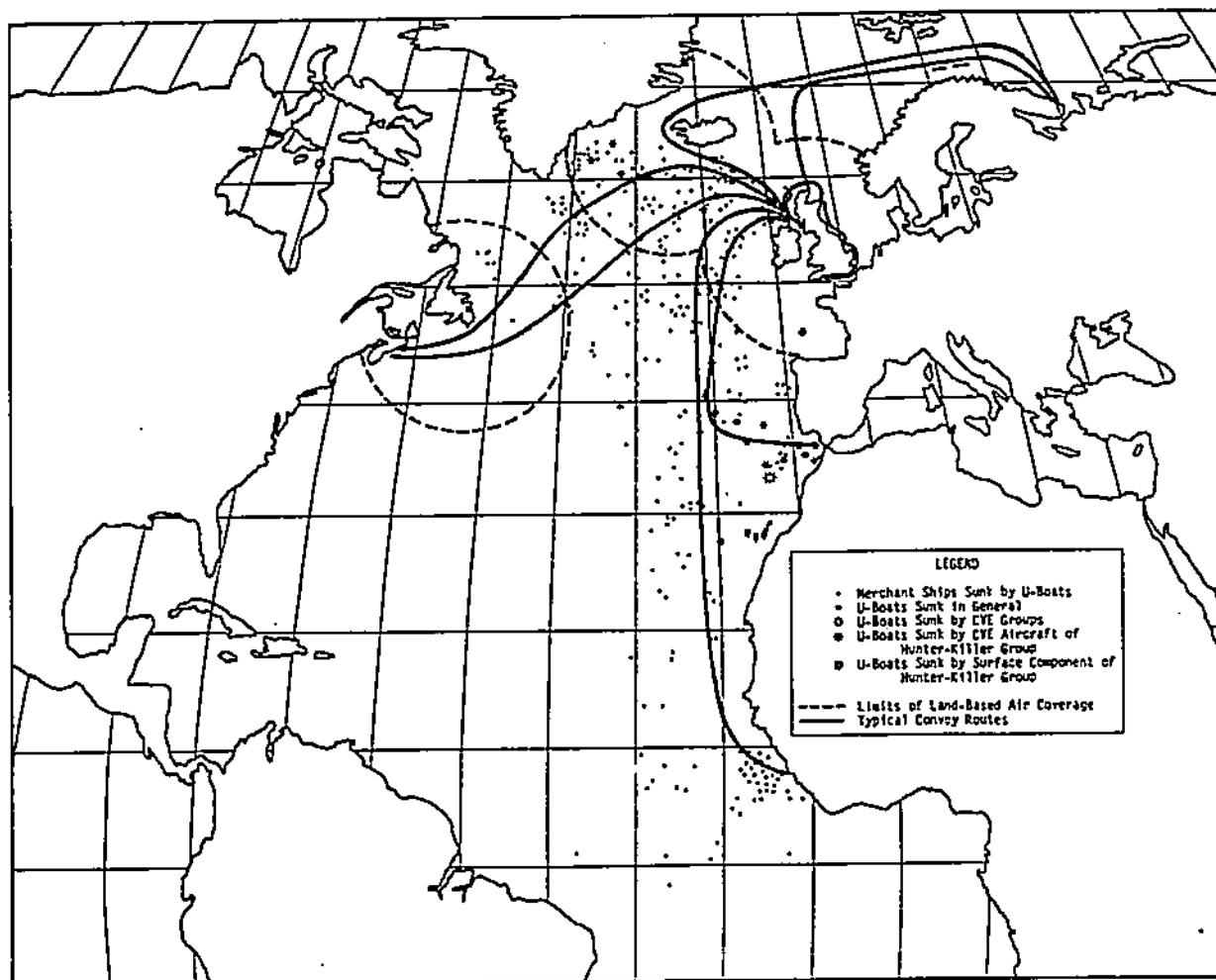
New ASW  
Hardware

1. The introduction of "snowflake" illumination. A significant improvement over "star shells," "snowflake" brilliantly lit up the scene of U-boat attack, providing

"Snowflake"  
Illumination

\* Plans had been made by the Admiralty in February 1941 to convert into more elaborate Auxiliary Carriers six additional merchant ships already building in British yards and to accept the loan under Lend-Lease of five or six U.S. merchant-to-carrier conversions. In March 1942 the first U.S. conversion built for the British, HMS Archer, was ready, and in late 1943 the first British conversion since Audacity, HMS Activity, was operational.

## The Atlantic U-boat War



Date	Merchant Losses				U-boats Lost
	In Convoy	Stragglers	Independent	Total	
1941 Apr	10	1	32	43	2
May	11	4	43	58	1
June	13	3	45	61	4
July	9	0	11	20	1
Aug	16	1	6	23	3
Sept	37	8	8	53	2
Oct	19	5	8	32	2
Nov	5	3	4	12	5
Dec	9	2	12	23	10
Total	129	27	169	325	30

Phase III Situation Map and Chart.

*The Atlantic U-boat War*

the convoy escorts with a chance to locate surfaced U-boats at night, and thus carry out a counterattack.

2. The development of the "Hedge Hog" ahead-thrown depth charge. "Hedge Hog" was a multispigoted mortar that threw twenty-four projectiles with contact fuzes in a circular pattern about 250 yards ahead of the ship. The advantages of "Hedge Hog" over conventional depth charges were twofold: the multiple small charge offered greater chance of hitting the U-boat than one heavy charge, and the fact that the charges were thrown ahead of the ship allowed sonar contact to be maintained up to the point of attack.

*Hedge Hog*

3. The introduction of RDF Type 271 (the first 10-cm radar). By the end of 1941, 10-cm radar had been fitted into only a few British corvettes, and though it offered much greater potential for ASW than metric radar, its overall effectiveness was limited by the low number of sets in operation, and the lack of spare parts and trained servicemen and technicians.

*10 cm Radar*

Airborne ASW had also seen a major advancement in the replacement in early 1941 of the inadequate 100 and 500 pound antisubmarine bombs with an airborne adaptation of the Mark VII (450 pound) and Mark VIII (250 pound) naval depth charges. By exploding beneath the surface, the depth charge gave the aircraft much higher destructive potential, since at this time U-boats were rarely attacked when completely surfaced. However, the original fifty-foot setting was found to be too deep and limited the effectiveness of the airborne depth bombs until shallower settings were introduced.

*ASW Bombs  
Replaced*

In contrast to the British improvements in ASW, by the end of 1941 the effectiveness of the U-boats against British merchant shipping had declined, despite their greatly increased numbers.\* To emphasize this, ten U-boats had been lost to all causes in December 1941, the highest total of the war to date. Thus, by the end of 1941, the real crisis in the Battle of the Atlantic, the ability of the British to survive, had passed. This is not to imply that the U-boat war was over, or was, after this point, no longer crucial to the war's outcome. Indeed, there were to

*U-Boat  
Effectiveness  
Declining*

\* On 31 December 1941 there were eighty-seven operational U-boats, compared to thirty-two a year earlier. However, during the nine months from 1 April 1941 to the end of the year, U-boats had destroyed just 325 merchant vessels in return for 30 U-boats sunk in all waters. This gave an exchange rate of about eleven merchant vessels lost for each U-boat sunk. When compared to the thirty-four to one exchange rate of the previous ten months it is easy to see why the British began 1942 with more optimism.

*The Atlantic U-boat War*

*Britain's  
Survival no  
Longer in Peril*

be many more trying times, especially in the early months of 1943 when the wolf pack actions against convoys reached a climax. However, after 1941 the significance of the U-boats to the overall war picture had decreased from that of being able to literally starve Britain into submission into the less important but still significant task of impeding the Allied ability to wage an offensive war.

### **Phase IV: 1 January - 31 July 1942**

#### *U.S. Involvement in the Battle of the Atlantic Prior to Pearl Harbor*

*Fall of France  
Heightens U.S.  
Concern*

The U.S. was involved in the Battle of the Atlantic long before war was officially declared in December 1941. This was the result of common interests in the war's outcome as expressed by President Roosevelt's close association with Prime Minister Churchill. This association was greatly strengthened after the fall of France in June 1940 as Americans began to realize England too might soon be defeated, placing Germany in sole control of all the economic and military power of Europe.

*September 1940  
Destroyers for  
Bases Agreement*

To counter this possibility, President Roosevelt on 3 September 1940 ordered the transfer of fifty overage destroyers to Great Britain in exchange for leases on British bases in Newfoundland, Bermuda, and the West Indies. The following December, in an effort to appease Churchill's repeated urgings for more aid, while still keeping the United States technically neutral, Roosevelt proposed the Lend-Lease Program. After lengthy debate Congress finally approved Lend-Lease on 11 March 1941, providing that the United States could lend certain "defense articles" to those nations whose survival the President deemed vital to American security.

*March 1941  
Lend-Lease*

*Greenland and  
Iceland  
Occupied by  
U.S. Forces*

Concerned about the continued success of the German attack on Allied shipping, the United States followed up on the Lend-Lease agreement in the spring of 1941 by taking over the British occupation of Greenland and Iceland. By July U.S. naval forces were helping Britain escort convoys in the eastern North Atlantic. On 17 October 1941 the Navy suffered its first casualties of the "war" when U-568 torpedoed the USS Kearny which was escorting Convoy SC 48. Kearny survived, but on 31 October U-552 sank the U.S. destroyer *Ruben James*, resulting in a great loss of life. Thus, by the time war was officially declared, the U.S. Atlantic Fleet had been actively engaged in the U-boat war for nearly six months.

*First USN  
Casualties*

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S-B A  
ASW

*The Atlantic U-boat War*

*German Strategy at the Outset of American Operations*

Upon the United States' official entry into the war on 11 December 1941, Doenitz adopted a strategy similar to the one he had employed upon the outbreak of war with Britain some two years earlier. As he later recorded in his memoirs:

*U-Boats go  
After Inde-  
pendents . . .*

American waters had hitherto remained untouched by war. In them, merchantmen, including those bound for Canadian ports, such as Halifax and Sydney, Nova Scotia, where the convoys were formed, all sailed independently. . . . All in all we believed that we should find conditions at least as favorable for the conduct of U-boat operations as those which had obtained a year or two earlier in British waters. . . . It was, therefore, of primary importance to take full advantage of the favorable situation as quickly as possible and with all available forces, before the anticipated changes occurred.<sup>22</sup>

However, despite Doenitz's desire to make the most of this opportunity, Berlin did not agree to his plans to concentrate the majority of available U-boats in the prospectively lucrative American hunting grounds:

*. . . but not  
with Full  
Strength*

But Naval High Command did not feel justified in weakening our forces in the Mediterranean. The boats were not released from their purely defensive role west of Gibraltar, and I was left with only six boats with which to strike my first blow off the American coast. Of these only five were ready to put to sea from the Biscay ports between December 16 and 25. We therefore had to be content with five boats for our first operation.<sup>23</sup>

*"Peacetime" Condition of U.S. Antisubmarine Defenses*

Despite the limited numbers of U-boats involved, the grossly deficient state of the United States antisubmarine defenses in the area enabled the initial U-boat offensive off the U.S. east coast to be successful beyond even the most optimistic German expectations. Unfortunately for the Allies, the virtual impunity with which these U-boats operated, clearly evident in the following excerpt from

*U.S. Not Ready  
for ASW*

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Doenitz's memoirs, was the result of the "peacetime" conditions that existed in U.S. waters until mid-May 1942:

*Peacetime  
Conditions in  
U.S. Waters*

The attack was a complete success. The U-boats found that conditions there were almost exactly those of normal peacetime. The coast was not blacked-out, and the towns were a blaze of bright lights. The lights, both in light-houses and on buoys, shone forth, though perhaps a little less brightly than usual. Shipping followed the normal peacetime routes and carried the normal lights. Although five weeks had passed since the declaration of war, very few antisubmarine measures appeared to have been introduced. There were, admittedly, anti-submarine patrols, but they were wholly lacking in experience. Single destroyers, for example, sailed up and down the traffic lanes with such regularity that the U-boats were quickly able to work out the time-table being followed. They knew exactly when the destroyers would return, and the knowledge only added to their sense of security during the intervening period. A few attacks with depth charges were delivered by American patrol vessels; but the attackers did not display the requisite perseverance, and the attacks were abandoned too quickly. The aircraft crews employed on anti-submarine work were also untrained.

The merchantmen used their radio without any restrictions. They frequently signalled their positions, with the result that the U-boats were able to form a very useful overall picture of the shipping in their vicinity. The merchant service captains, obviously, had received no instruction with regard to the various forms of attack the U-boats might employ, and the possibility of night attacks appeared to have been completely overlooked.<sup>24</sup>

*Type VII's  
Join the Attack*

Originally, Doenitz believed that only the long range Type IX U-boats would be capable of operating successfully in American waters south of Newfoundland. However, as the early reports of the weak state of the U.S. ASW defenses were received by the U-boat Command, it was realized that the smaller Type VII U-boats could also make the trans-Atlantic journey, successfully expend their supply of torpedoes, and still have enough fuel to return home.

*The Atlantic U-boat War*

As illustrated above, upon the outbreak of war the United States was ill-prepared to contain the submarine threat off her Atlantic coast. The demands of the Pacific war and the earlier commitments to aid the British in escorting the trans-Atlantic convoys contributed greatly to this unpreparedness as did the general lack of ASW policy and training. When war began Admiral Adolphus Andrews, the commander of the North Atlantic Naval Coastal Frontier (later the Eastern Sea Frontier), upon whom the initial responsibility for ASW fell, had at his disposal approximately twenty surface vessels\* with which to protect the 1,200 mile coast from Maine to Key West. Commenting on this force, Admiral Andrews wrote to Cominch on 28 December 1942:

*Reasons for  
U.S.  
Deficiencies*

There is not a single vessel available that an enemy submarine could not outdistance when operating on the surface. In most cases the guns of the vessels would be out-ranged by the guns of the submarine.<sup>25</sup>

*Air and Surface  
Strength  
Inadequate*

The strength of the Naval Air Force was equally deficient, as indicated by Admiral Andrews' 14 January 1942 memorandum to Cominch describing the inadequacy of those forces: "There are no effective planes attached to the Frontier, First, Third, Fourth, and Fifth Naval Districts capable of maintaining long range seaward patrols."<sup>26</sup>

With so few available antisubmarine forces, the U.S. Navy did not initially adopt the convoy system, but instead attempted to cover the long coastal shipping route by regular air and surface patrols. These patrols were largely ineffective, destroying only three U-boats between January and June 1942 while during the same period in the same general area hundreds of merchant vessels were lost to U-boat attack. The Navy's failure to institute the convoy system was a major reason for the immense success the U-boats achieved. As recent war experience had proven, and indeed in the first six months of 1942 would prove again, convoyed shipping, even when weakly escorted, did much better than an equal volume of independent shipping against an unrestricted campaign by conventional submarines.

*Convoy not  
Initially  
Introduced*

The dire situation off the American coast was worsened by the existing command structure that included no central organization responsible for the control of the

*No Central ASW  
Command*

\* These included four PY boats, four SC boats, one 165-foot Coast Guard cutter, six 125-foot Coast Guard cutters, three PG boats and three World War I Eagle boats.

antisubmarine activities of the various Sea Frontier and fleet commands. Thus there was no broad directive governing antisubmarine doctrine, methods, and operations, resulting in considerable command confusion which hindered the efficiency of the already pressed American ASW forces.

*Army Assumes  
Air ASW  
Responsibility*

According to general defense plans drawn up before the war, the Navy was to assume responsibility for air ASW operations beyond the coastline, leaving to Army aircraft only a supporting role. However, shortly after war began, Admiral Andrews, realizing the deficiency of his airborne ASW forces, requested the commanding general of the Army's Eastern Defense Command to undertake offshore antisubmarine patrols with all available aircraft. Thus, the brunt of the American air ASW effort became the job of the Army Air Force, whose units had been neither trained nor equipped for ASW but were still better suited to the task than the existing naval air forces by virtue of available long range aircraft.

*The Introduction of the Convoy System and the First Supply  
U-boats in American Waters*

*May 1942*

*Convoy  
Introduced off  
U.S. East Coast*

*First  
Submarine  
Tanker Arrives*

In mid-May 1942 the U.S. Navy, feeling it finally had sufficient escort forces, established a convoy system off the east coast of the United States. This measure proved immediately effective, and U-boat sinkings in that area fell off markedly. However, U-boat activity in the Gulf of Mexico and the Caribbean continued successfully, accelerated by the advent of the first U-tanker (U-459) which sailed from Brest on 21 April 1942. A significant advantage of the supply U-boats to the German offensive in American waters was that they made it possible to extend the range of the Type VII boats to the hitherto inaccessible waters south of Florida. Thus, at the time when the convoy system was restricting U-boat operations off the U.S. coast, the intensity of the Gulf and Caribbean campaigns was increased. Eventually, as the convoy system was gradually extended to those waters in June and July, U-boat successes there declined. By the end of July these improvements were so restricting U-boat operations off the Americas that Doenitz decided full scale operations in those waters were no longer practicable.

*August 1942*

*U-Boats  
Reconcentrated  
Against the  
Atlantic  
Convoys*

In August the majority of the U-boats returned to the offensive against the North Atlantic convoys--the vital supply link in the Allies' war machine. By that time there were enough submarines available to maintain smaller scale

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operations in the distant waters of the Caribbean, the Indian Ocean, and off southern Africa, while still directing the brunt of the U-boat offensive against the North Atlantic convoys.

Summary of the U-boat Campaign in American Waters

In the seven months of operations against shipping in U.S. waters Doenitz certainly accomplished his initial objective of making the most of the favorable conditions existing there. From 1 January to 1 August 1942, U-boats sank 670 Allied merchant ships, the great majority of which were destroyed off the American east coast.\* In exchange for these U-boat successes, Allied ASW forces accounted for thirty-one U-boats in all waters, only eleven of which were destroyed in American waters west of 45 degrees west.

Great Success  
in U.S.  
Waters

In spite of the immense success achieved by the U-boat offensive in American waters, Doenitz was not completely satisfied with the results. Again he felt that the German High Command had denied him the full power of his U-boat fleet when the opportunities for success were "pre-eminently favorable." By continuing to employ "the most effective part of the U-boat arm" in the Mediterranean and by employing an additional twenty U-boats in January 1942 as sentries against an Allied invasion of Norway, Hitler, in Doenitz's opinion, had reduced the volume of "tonnage sunk in 1942 by some million BRT (British Registered Tons)." 2.

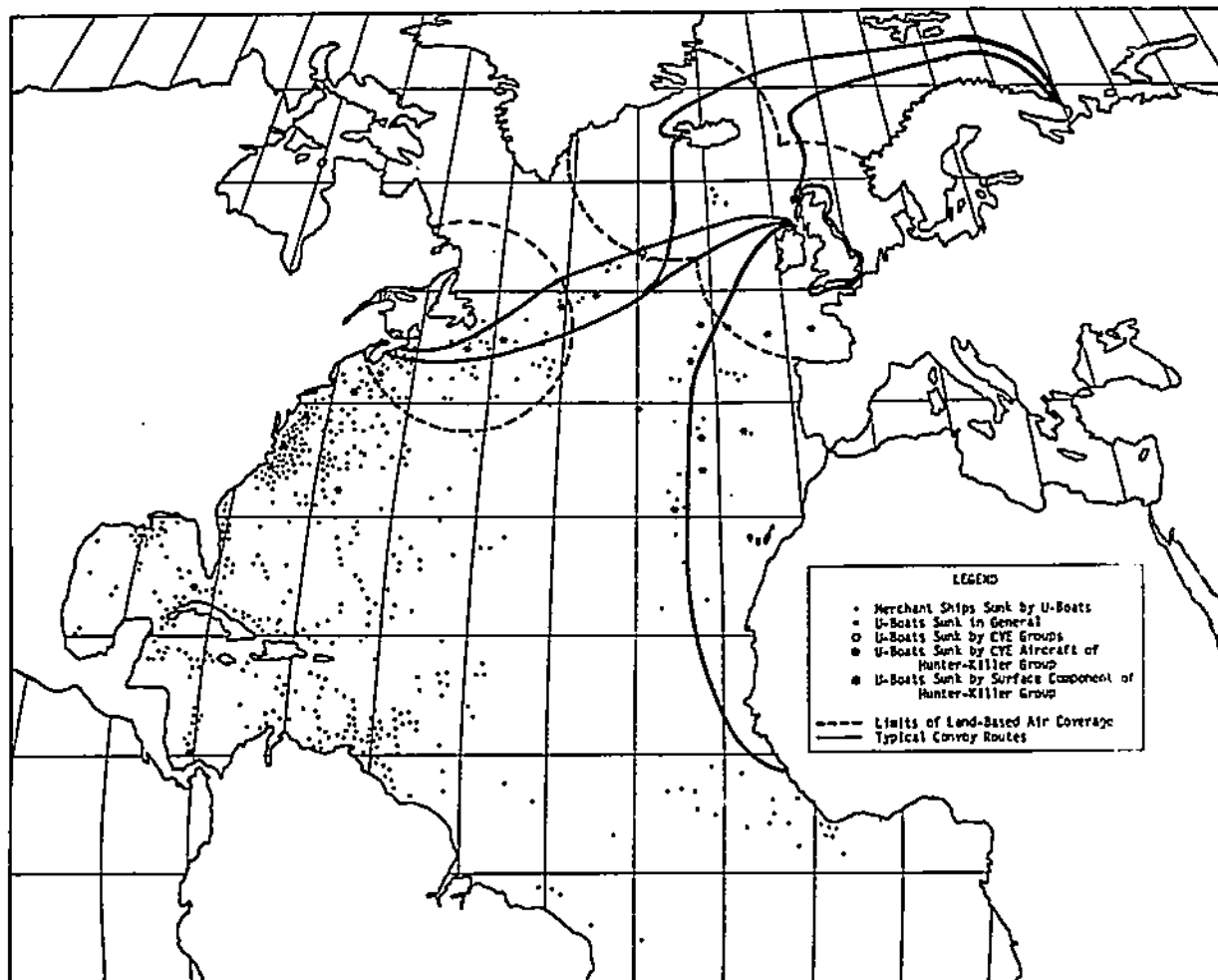
Doenitz not  
Satisfied

The Offensive Against the U-boat Transit Routes

From November 1941 through May 1942 the U-boat fleet was concentrated in other areas, and the trans-Atlantic convoys enjoyed comparative peace. This allowed for a lessening of antisubmarine escort forces, especially Coastal Command's aircraft, on the trans-Atlantic routes. As a result, beginning in early spring 1942 the British began conducting intensive airborne offensive patrols over the Biscay and Faeroe-Shetland U-boat transit routes. However, despite the extensive use of Mark II (metric) radar, until June 1942 the Bay offensive produced only limited results, as the majority of U-boats were transiting the area at night. Consequently, though there were about twenty promising night radar contacts during this period,

Air Patrols  
Produce Limited  
Results

\* Only 73 of these 670 ships were in convoy when sunk.



Date	Merchant Losses				U-boats Lost
	In Convoy	Stragglers	Independent	Total	
1942 Jan	3	9	48	60	3
Feb	9	2	67	78	2
Mar	0	5	88	93	6
Apr	4	1	69	74	3
May	13	1	111	125	4
June	20	3	121	144	3
July	24	2	70	96	11
Total	73	23	574	670	32

Phase IV Situation Map and Chart.

*The Atlantic U-boat War*

the lack of an effective night target illuminant for aircraft prevented the contacts from being prosecuted.<sup>28</sup> However, on 1 June the first Leigh Light-fitted\* Wellingtons became operational, and after that date the numbers of night aircraft attacks on surfaced U-boats became so numerous that by the end of the month Doenitz ordered his submarines to transit the Bay submerged by night and surfaced by day. This in turn led to an increase in the number of daylight contacts (both visual and radar) and attacks, and Doenitz was forced on 24 June to order the U-boats to remain submerged both day and night when crossing the Bay, surfacing only to charge their batteries. This tactic greatly increased the U-boats' time on passage and thus, despite the lack of submarine kills, the Allies' Bay offensive had a very advantageous effect. To counter this, Doenitz proposed that the U-boats be fitted with increased anti-aircraft armament and, if possible, that a radar search receiver be developed to provide early warning of the approach of radar-equipped aircraft.\*\*

*Leigh Light  
Introduced*

*Doenitz  
Requests  
Additional  
Anti-Air  
Capability*

The air patrols over the Faeroe-Shetland passage north of Scotland produced less satisfying results than the Biscay patrols. The lack of U-boat kills by aircraft in the offensive against the U-boat transit routes raised several questions concerning the ASW capability of the depth bomb. In July 1942, in an effort to provide aircraft more punch, the depth bombs were filled with Torpex, a substance 30 percent more explosive than the old Anatol filling.\*\*\* In addition, a new 15-25 foot depth setting

*ASW Depth  
Bombs  
Improved*

- \* At the suggestion of Squadron Leader Humphrey deVerde Leigh, RAF, a standard Mark IV naval arc lamp in a nacelle was fitted to the forward part of an aircraft's fuselage with remote controls for elevation and training. Though suggested in late 1940 the idea had operational teething problems and was not in combat service until June 1942. Eventually it revolutionized night airborne ASW attack techniques. During the war some 300 attacks were made with the aid of the Leigh Light, resulting in the destruction of twenty-seven U-boats and the damaging of thirty-one more. Ship-based aircraft were not initially capable of carrying Leigh Light because of weight restrictions.<sup>29</sup>
- \*\* Between July and September 1942 the French firms Metox and Grandin developed the first radar search receiver. Metox, as the device was called, was able to pick up radar signals on all frequencies between 113 to 300 megahertz, well within the limits of metric radar (176 to 220 megahertz). Operational in mid-September 1942, Metox effectively countered metric radar, and by the end of the year was standard equipment on nearly all U-boats.<sup>30</sup>
- \*\*\* Eventually, in February 1943 the Torpex filling was replaced with an even more explosive substance, Minol, which was lethal to a U-boat hull within twenty-five feet of the explosion and which would probably force one to surface within fifty feet.

*The Atlantic U-boat War*

pistol was developed which, when coupled with the new Torpex filling, gave aircraft more lethal power for ASW. Thus, with the introduction of radar, Leigh Light, and a more efficient depth bomb, aircraft were becoming better equipped to detect and destroy submarines. These advancements marked a significant improvement over the days when aircraft had to be content with driving U-boats from the surface.

HMS Archer*HMS ARCHER'S  
Troubles*

Another development which occurred while the U-boats were concentrated against the independent shipping in American waters was the coming into service of the U.S.-built HMS Archer. She was the first of thirty-eight CVEs built for the British in U.S. yards and the first British escort carrier since *Audacity* to see combat. Though commissioned in November 1941, Archer was not available for escort duty until 19 March 1942 as a collision with the tanker USS *Brazos* and other machinery defects delayed her working-up period. When she finally did become available, Archer formed the nucleus of the first support group to work with the Sierra Leone convoys. However, continuing machinery difficulties in April and later in July 1942, mostly involving her engines, rendered Archer virtually inoperable until late October when she sailed in support of Allied Operation Torch, the North African invasion.

The Merchant Aircraft Carriers

Before discussing the events after July 1942, it is important to mention here the development of the final form of sea-based air ASW to evolve during World War II, the Merchant Aircraft Carriers (MACs).

*February 1942**MAC Ships  
Proposed*

By February 1942 it had become obvious to the Admiralty that the production of escort carriers was not sufficient to meet the demands of convoy protection and other offensive or defensive tactics requiring ship-based aircraft support. Thus, new plans were considered to develop another breed of merchant conversion, this time using either grain ships or tankers which would be fitted with a flight deck and equipped to carry three to four fighters in addition to the normal cargoes. The grain ship conversions were to have a shorter flight deck than the tankers but would be equipped with a hangar, which the tankers did not have. In October 1942 plans were made to convert six of each type. Eventually, nineteen MAC ships

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were commissioned, the first, *Empire MacAlpine*, sailing in May 1943 and the last, *Macoma*, entering service in May 1944.

The significance of the MAC ships cannot be judged by the fact that they destroyed no U-boats in their two years of operation. Indeed, these were valuable additions to the antisubmarine escort force as evidenced by the fact that of 217 convoys that sailed with one or more MAC ships, only one suffered losses from U-boat attack. Not only did the MAC ships help to fill the gap in convoy air ASW protection until the delivery of the escort carriers in sufficient numbers, but when the more capable CVEs did come, the MAC's provided convoys enough protection to enable the escort carriers to operate in different configurations: as assault ships, in roving support groups, or on Hunter-Killer patrol.

*MACs Effective*

**Phase V: 1 August 1942 -31 May 1943**

*The U-boats Return to the North Atlantic Convoy Routes*

Since the convoy system, supported by increasing numbers of surface and air escort forces, had reduced U-boat effectiveness in American waters after May 1942, Doenitz planned in August to renew in full the attack on trans-Atlantic convoys. Here, he felt the U-boats were presented with a great opportunity for success. As he later wrote:

*Atlantic  
Convoys Offer  
U-boats a  
Great  
Opportunity*

. . . the main weight of our attack in the war on shipping had now to be transferred back to operations against convoys to and from Britain, in mid-Atlantic, where they were beyond the range of land-based air cover. It was in these areas on the high seas that the U-boats would enjoy their greatest freedom of action, for wolf-pack tactics could be employed without enemy interference in all phases of surface operations, and that we could in consequence expect to achieve the maximum possible success. . . .

*No Land-Based  
Air Cover*

Taken as a whole, the Atlantic offered a great series of opportunities and promise of very considerable success, and this I proposed to exploit as and when our operations against the North Atlantic convoys permitted

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*The Atlantic U-boat War**Convoys Routed  
On the Great  
Circle*

. . . In the North Atlantic we found that convoys to and from Britain and North America were still following the shortest route and sailing along the great circle. . . .\*

*More U-boats  
Available*

In addition to the tenacious manner in which the British clung to the shortest route, location of their shipping was further facilitated by the fact that more boats--and hence more "eyes"--were now available. The scouting and reconnaissance formations which U-boat Command had instituted were now of much greater breadth and consequently covered far wider areas.

*Accurate Radio  
Intelligence*

To these favorable factors must be added the further fact that our "B-Service," the cryptographic section at Naval High Command which monitored enemy radio traffic and tried to decipher it, had succeeded, after working on a mass of enemy signals, in breaking the British secret cipher to a very considerable degree.\*\* "B-Service" was able again and again to give U-boat Command timely and accurate information regarding the whereabouts of convoys.<sup>31</sup>

*U-boats Operate  
in the  
"Greenland Gap"*

As the U-boats renewed their operations against the trans-Atlantic convoys in late summer and fall of 1942, it became obvious that they were operating outside the range of shore-based aircraft in an area that came to be known as the Greenland Gap--a three hundred mile wide strip of ocean southeast of Greenland between Newfoundland and Great Britain. As U-boat successes in the Greenland Gap mounted through the last half of 1942,\*\*\* the Allies' need for additional VLR and sea-based aircraft to effectively cover

\* The shortage of surface escorts and fuel forced the Allies to route their convoys on the shortest possible route.

\*\* Though initially checked when the Admiralty had changed ciphers in August 1940, by 1942 the Germans were again able to penetrate the British code to a substantial degree and enjoyed an advantage in decrypted intelligence operations until a similar Allied breakthrough in December 1942.

\*\*\* Beginning in May 1942 U-boat successes against convoyed shipping rose steadily until December of that year. Including December, the total number of convoyed ships sunk during this eight month period was 223--by far the highest total for any eight month period to that date.

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these distant waters became increasingly vital. As Winston Churchill recorded:

It was now that we felt most acutely the lack of sufficient numbers of very long-range (VLR) aircraft. . . . Air cover still ranged no more than about six hundred miles from our shore bases, and (left) the large unguarded gap in the centre where the sorely tried surface escorts could gain no help from the air.<sup>32</sup>

*The Need for  
Air Cover Acute*

The "help" to which Churchill referred--the CVEs and VLR aircraft--was not yet available in the numbers required.

By November 1942 there were eight CVEs in service, four British (*Archer, Avenger, Biter, Dasher*) and four American (*Chenango, Suwanne, Sangamon, Santee*). However, until March 1943 their involvement in Operation Torch (the Allied landing in North Africa), either to ferry aircraft, to provide the convoys ASW/anti-aircraft protection, or to serve as mobile bases for fighter support of land operations, prevented them from operating as merchant convoy escorts.

*CVEs Involved  
in "Torch"*

Despite the unavailability of the CVEs, the absence of air escort for the trans-Atlantic convoys in the Greenland Gap between July 1942 and March 1943 was not total. By the end of 1942 a few VLR Liberator aircraft operating from Iceland under Coastal Command control were able to provide limited air cover over the entire Gap when summoned to the aid of certain threatened convoys. However, for the time being, these were too few to provide constant cover to the area, especially since until March 1943 they were available only from eastern Atlantic bases.

*VLR Aircraft  
Still Too Few*

The U-boat successes against convoyed shipping in the Gap area during the latter half of 1942 were not, however, without sacrifice to the Germans as increasing numbers of Allied surface escorts, now equipped with ship-based HF/DF and 10-cm radar, were becoming more efficient U-boat killers.\* In addition, in September 1942, in a major tactical advancement, special support groups consisting of varying numbers (three to ten) of escort vessels (DEs, corvettes, trawlers and sloops), and often a refueling oiler were formed with the specific mission of destruction

*Surface ASW  
Improved*

*Support Groups  
Formed*

\* From July through December 1942 convoy surface escorts destroyed twelve U-boats in the mid-Atlantic.

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of U-boats. Free to pursue U-boat contacts indefinitely, the support groups constituted a clear advantage over the days when convoy escorts, primarily concerned with the safe passage of the convoy, were not able to follow up promising contacts for more than several hours for fear of leaving their convoys alone and open to further attack. However, due to the steady increase in U-boat production, the increased losses the U-boats suffered at the hands of the Allies' improved surface escorts and roving support groups during the winter of 1942-43 were not enough to discourage Doenitz from continuing the assault on the Atlantic convoys.

*December 1942*

*Allied  
Intelligence  
Breakthrough*

In December 1942 and January 1943 the tempo of the U-boat offensive eased somewhat, the result of several factors, the most important of which was the Allied cracking of the "Triton" wireless code used between the Atlantic U-boats and Doenitz's headquarters.\* This advantage again allowed for better evasive routing of convoys, which in effect countered the advances the Germans had made since their penetration of the Admiralty's ciphers early in 1942. When coupled with the tempestuous Atlantic winter weather that limited visibility, clever evasive routing made the convoys extremely difficult for the U-boats to find. The effects of these conditions were soon noticed by Doenitz, who later recorded:

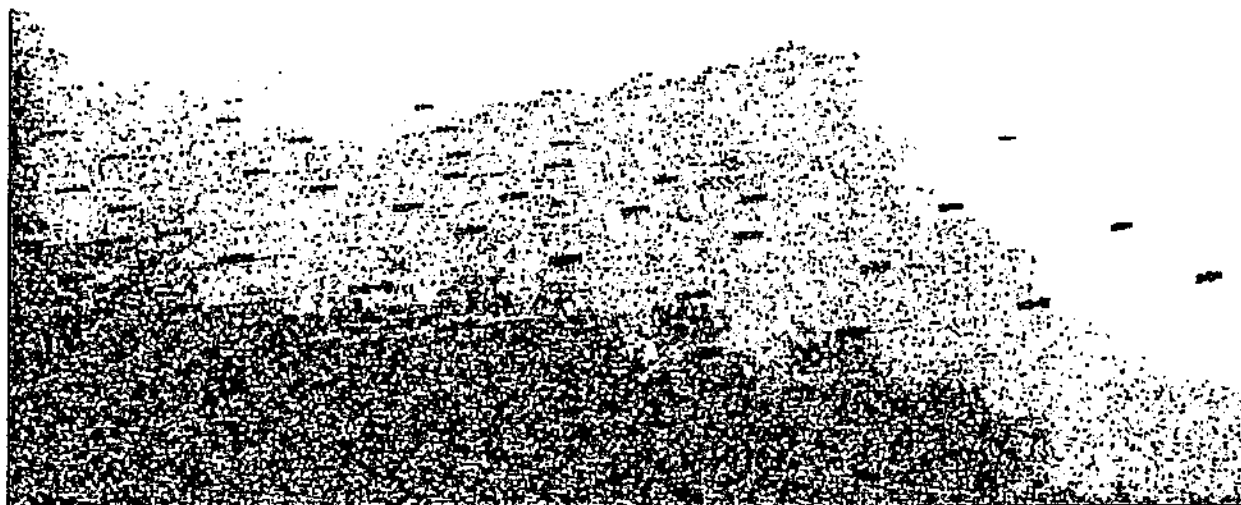
*Doenitz  
Suspicious as  
Allies  
Evasively  
Route Convoys*

But the weather alone cannot have been the reason why the U-boats failed during the first two weeks of January to find four convoys against which they were operating. In this month we had the impression that the hitherto very conservative manner in which the British had conducted their convoy routing had undergone some modification. They now seemed to be diverting convoys to a far greater extent and to be dispersing them over far wider areas of the Atlantic. The whole system had obviously become more flexible.\*\* 33

\* Since the introduction of the "Triton" cipher for Atlantic U-boats in February 1942, the Allied cryptanalysts had been "blind" to that wireless traffic.

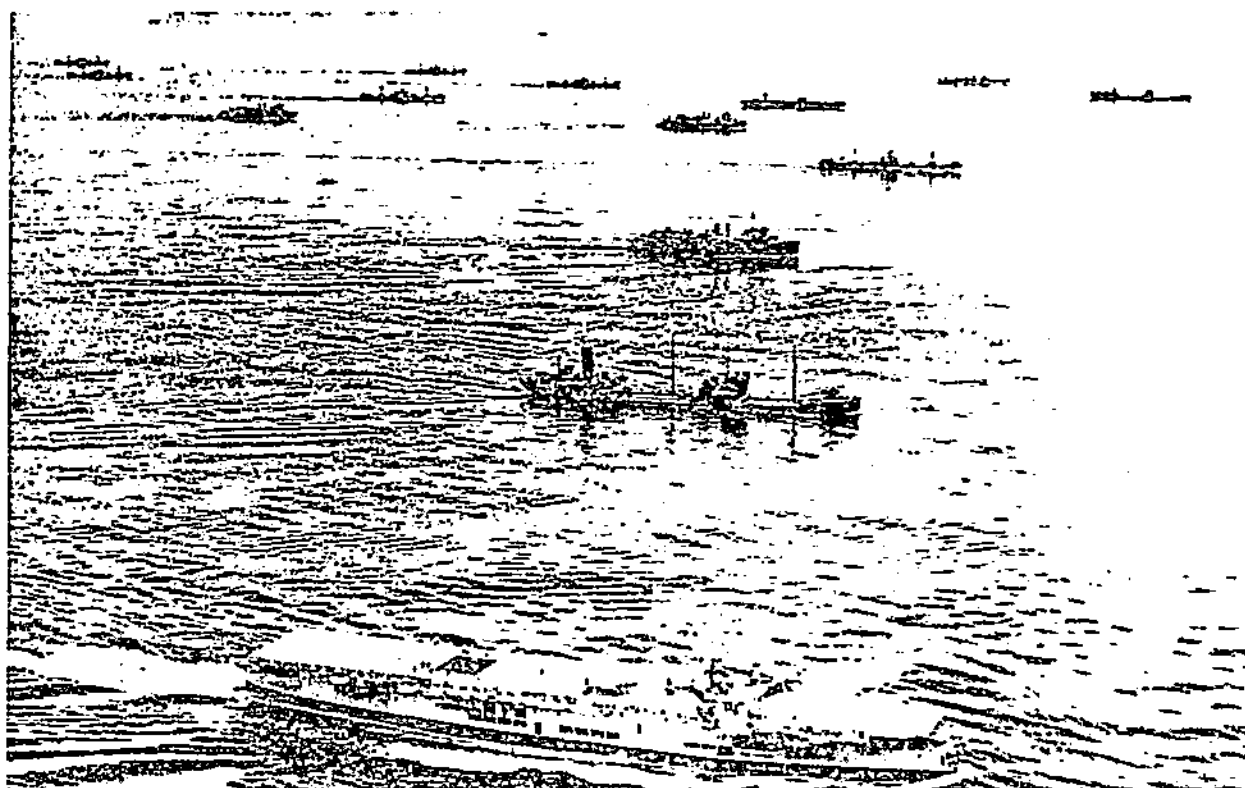
\*\* Doenitz soon became suspicious that the Allies had somehow gained insight into U-boat dispositions and instituted more stringent security regulations for his staff. In addition, at his request, the director of the Signals Division was ordered to conduct an investigation into the security of the "Triton" cipher. Eventually, on 5 March 1943, the investigation concluded that the British had attained their information through shore-based HF/DF bearings, radar location, agents' reports, and logical reasoning.<sup>34</sup>

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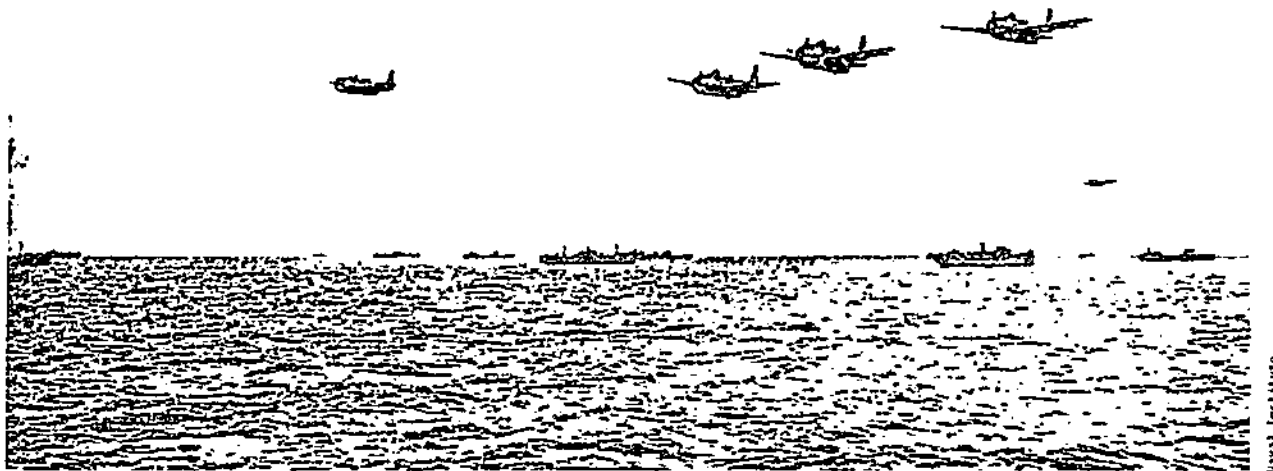
Reef Institute

*A North Atlantic convoy, 7 June 1943.*

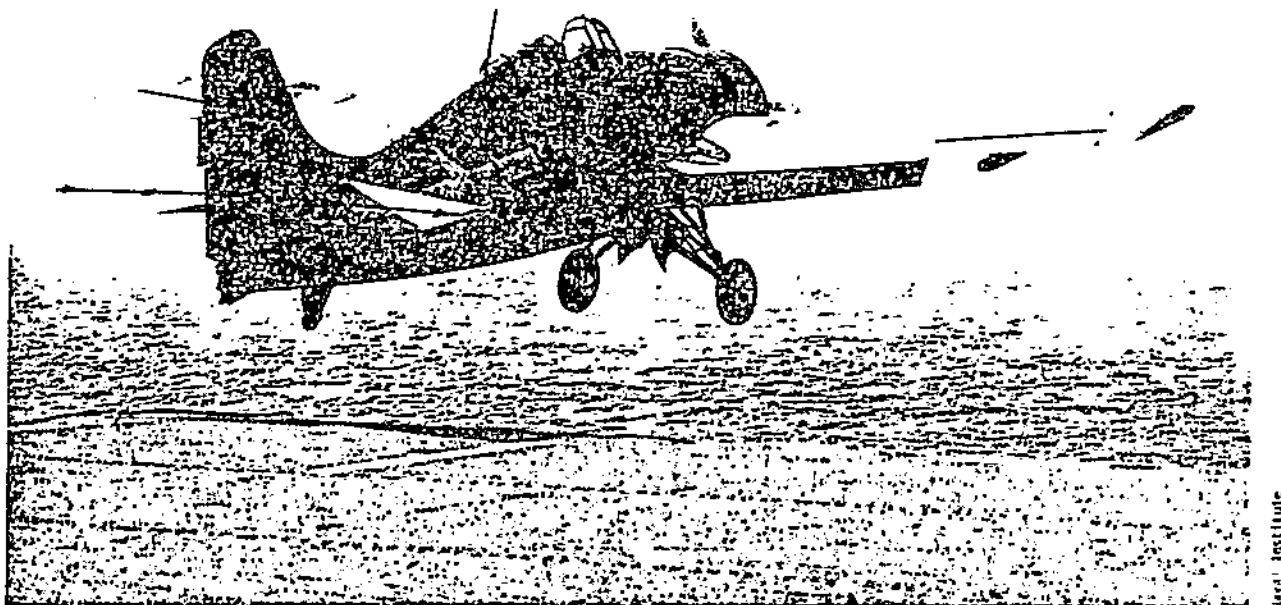


Washington National Archives Center

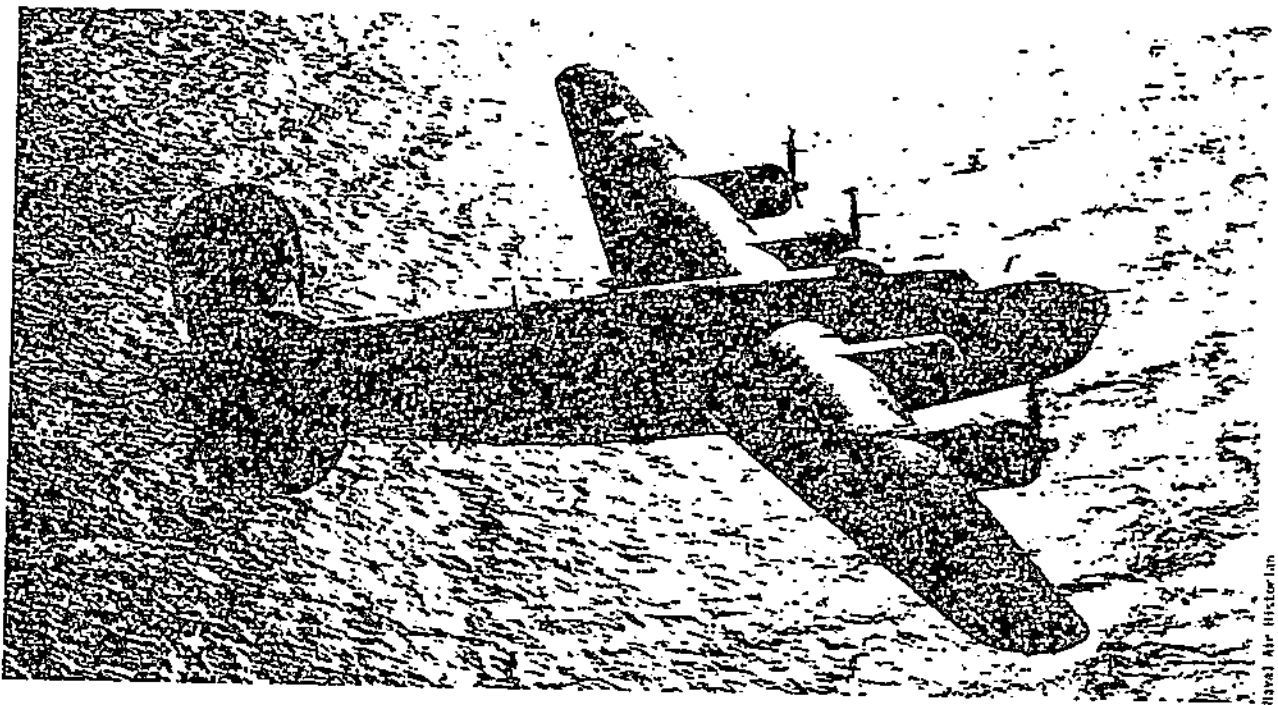
*USS Santee (CVE-29) escorting an Atlantic convoy, June 1943.  
Note the TBMs on deck.*



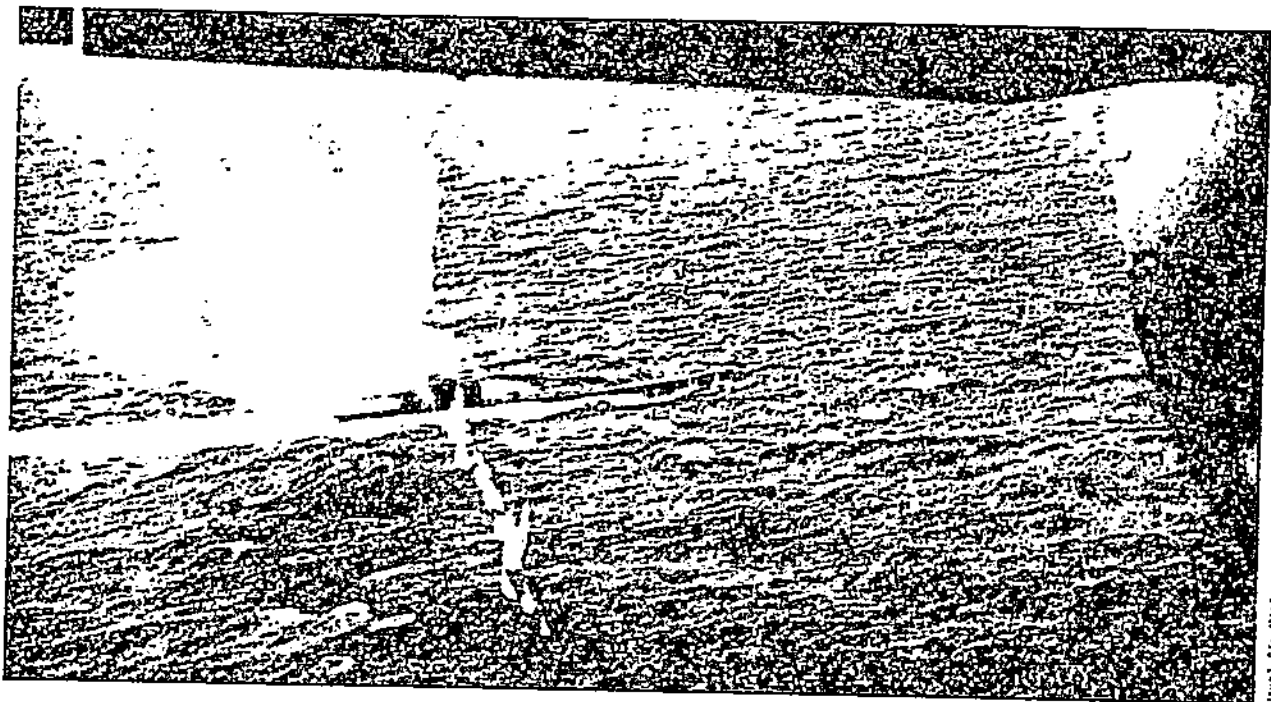
*Shepherding TBMs fly low over an Atlantic convoy, January 1944.*



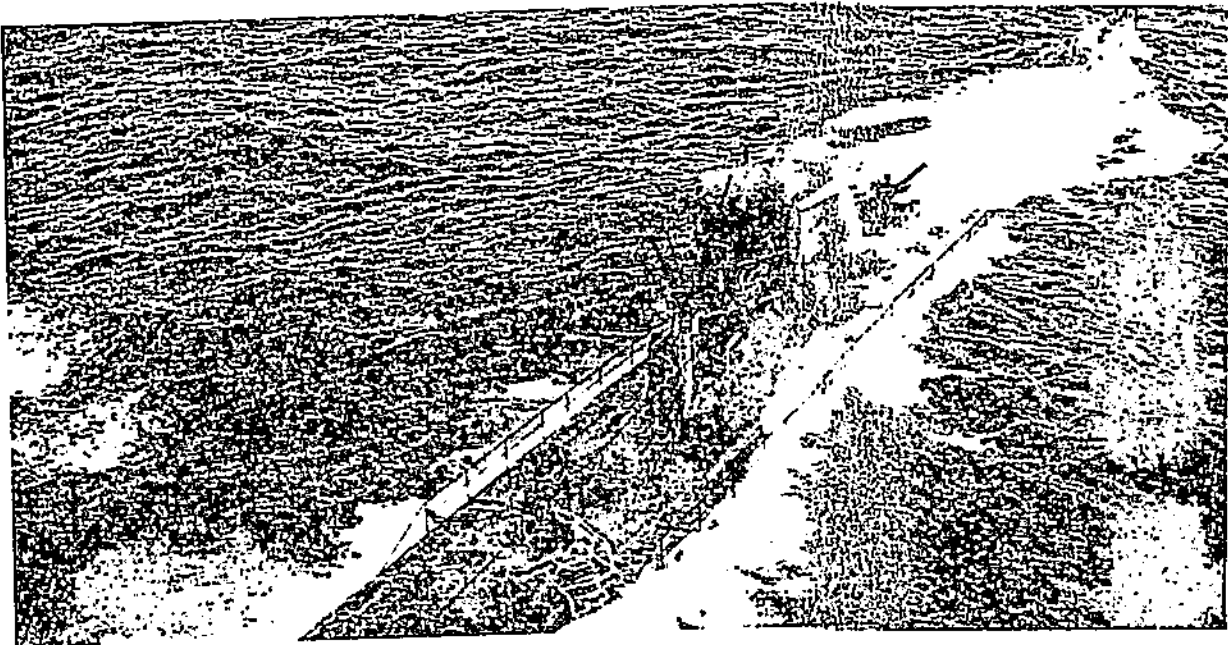
*An FM-2 (F4F) taking off from an escort carrier.*

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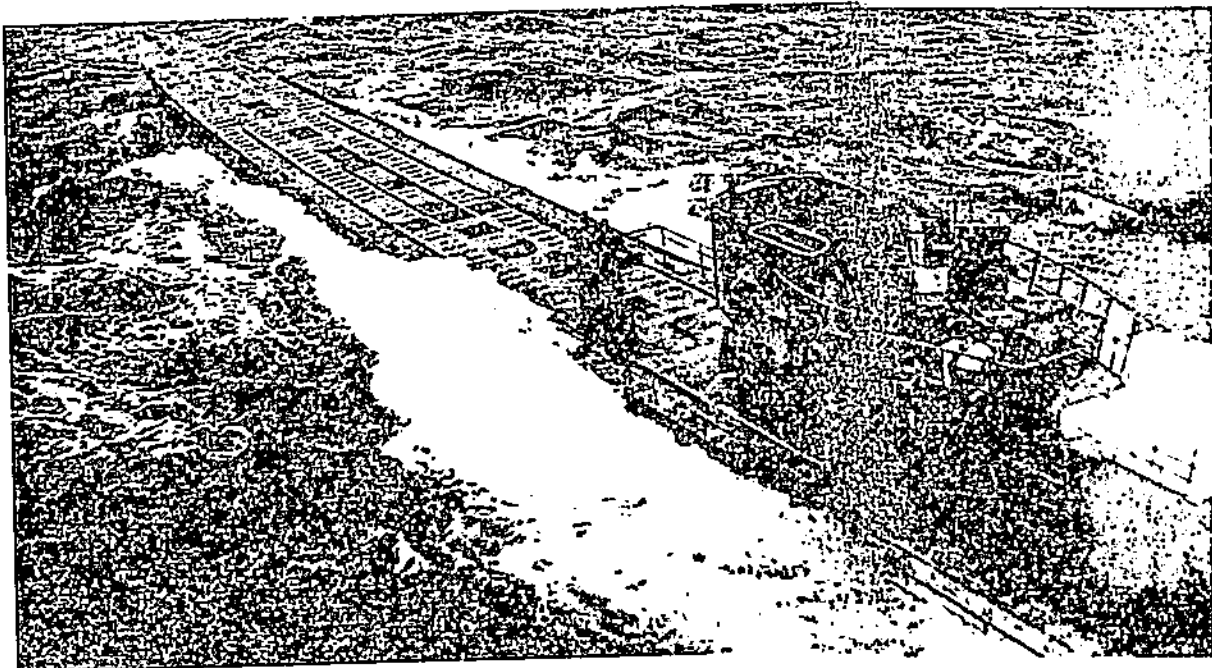
*A PB4Y-1 Liberator aircraft on patrol over the Bay of Biscay, November 1943.*



*A German U-Boat under attack from a U.S. Navy Liberator aircraft.*



U-174, a Type IXC, just before she was sunk by gunfire from the U.S. Coast Guard cutter Spencer on 17 April 1943. The effects of Spencer's depth charges, which forced the sub to the surface, are clearly evident.



U-848, A Type IXD<sub>2</sub>, surprised on the surface by U.S. Navy aircraft on 5 November 1943, the day she was sunk.

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*Large Wolf Packs Successful Against Convoyed Shipping*

The advantages in convoy routing the Allies had gained through radio intelligence in December and January were somewhat offset in February by the easing of the Atlantic winter storms and similar German advances in decrypting the Allied radio code.\* Thus, with more U-boats available than ever before, the prospects for successful interception and attack of the North Atlantic convoys were again promising. In all, seventy-four U-boats proceeded on Atlantic operations in February 1943, an indication of the determination with which the Germans assaulted the Allied sea lines of communication. The effect of this effort was evident immediately, as thirty-four convoyed ships were lost in February, the same total registered in the previous two months combined.

*February 1943*

*The Convoy  
Battle Gains  
Momentum*

Despite their successes against convoyed shipping, February 1943 was not a victory for the U-boats. In exchange for the thirty-four convoyed ships sunk, twelve U-boats had been destroyed by Allied air and surface escorts on the convoy routes--an exchange rate of less than three convoyed ships lost for each attacking U-boat lost. However, the increased losses U-boats suffered in February did little to dissuade the boldness with which they attacked the convoys, another example of the singleness of purpose with which they conducted their assault. Determined to sever the Allies' supply lines, Doenitz was prepared, and at last able, to sacrifice large numbers of U-boats, provided the results were rewarding. The climax of the Battle of the Atlantic was rapidly approaching.

*U-boats and  
Merchant Losses  
High*

\* The role played by radio intelligence in the decisive spring and early summer months of 1943 is difficult to determine. Between February and June 1943 both the German and British intelligence services were able to decrypt a large volume of enemy signals, often in time for operational use. Thus, in some cases information gained from cryptanalysis, analyzed and relayed in code to the field commanders, was itself intercepted and decrypted by the enemy, who would then alter his original plans accordingly. Clearly, British knowledge of U-boat dispositions or German knowledge of convoy routing and convoy escort rendezvous instructions would be a valuable aid to either side, equal to many additional forces. However, these transmissions were not always picked up, and many of those that were were not decrypted in time for operational use. Only by investigating each individual convoy transit can one determine in what cases one side gained an actual advantage, such as the Germans had in locating the combined convoys HX229 and SC 112 on 16 March, or the Allies had in late March in routing convoys SC 123 and ON 174 clear of known wolf pack concentrations.

March 1943

*Ferocious  
Convoy Battles*

Throughout March the convoy battles continued to be particularly bitter as large concentrations of U-boats again demonstrated boldness and persistence in shadowing and attacking heavily escorted convoys. The voyages of HX 229 and SC 122 present an excellent example of the month's action. HX 229, a fast Halifax-Great Britain convoy, overtook the slower SC 122 eastbound out of Sydney, forming a concentrated mass of merchant shipping in mid-Atlantic. On the night of 16-17 March a pack of thirty-eight U-boats attacked this concentration\* and took full advantage of the fact that it was out of reach of land-based air cover. Sinking fourteen ships on the first night (90,000 tons), the U-boats eventually destroyed twenty-one ships (141,000 tons) before they were forced to disengage the remainder of the convoy on 20 March. Continuous Allied land-based air cover had been provided for the convoy after the first night and the surface escorts had been strengthened by the addition of a support group called to the scene. Still, none of the attacking U-boats were destroyed and only two were damaged despite numerous depth charge attacks.

*High Convoy  
Losses Alarm  
Allies*

The high numbers of ships sunk in convoy in February and March caused the Allies considerable anxiety over their ability to support the European offensive if losses of this magnitude were to continue. Commenting on what he termed the critical period of the Battle of the Atlantic, the official Admiralty historian for World War II, Captain S. W. Roskill, wrote:

. . . Nor can one yet look back on that month (March) without feeling something approaching horror over the losses we suffered. In the first ten days, in all waters, we lost forty-one ships; in the second ten days fifty-six. More than half a million tons of shipping was sunk in those twenty days; and, what made the losses so much more serious than the bare figures can indicate, was that nearly two-thirds of the ships sunk during the month were sunk in convoy. "It appeared possible," wrote the naval staff after the crisis had passed, "that we should not be able to continue (to regard) convoy as an effective system of defence." It had, during three and a half

\* The U-boats were keyed to the location of these convoys by decrypted radio intelligence.

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years of war, slowly become the lynch pin of our maritime strategy. Where would the Admiralty turn if the convoy system had lost its effectiveness? They did not know; but they must have felt, though no one admitted it, that defeat then stared them in the face.<sup>35</sup>

Fortunately, the successes achieved by the U-boats in March 1943 were to be their last decisive victories against convoyed shipping. Beginning in April the Allies were able to provide enough air cover over the Atlantic to complement the effective surface forces there,\* ultimately destroying enough U-boats to curb their boldness and force their withdrawal from those waters.

Allied Aircraft Close the Greenland Gap

The advent of the escort carriers on a continuing basis for convoy escort in the Atlantic began on 10 March 1943 when the USS *Bogue*, operating F4F fighters and TBM torpedo bombers, sortied out of Argentia, Newfoundland in support of HX 228. As rough weather prevented *Bogue* from refueling her escort screen she was forced to abandon HX 228 after four days out, unfortunately just before the convoy came upon a heavy U-boat concentration which sank four of the convoyed ships within twenty-four hours after *Bogue* had departed. Thus it was not until late March, when *Bogue* gave escort to convoy SC 123 for six days from Newfoundland to 175 miles southeast of Cape Farewell, that the first continuous trans-Atlantic air cover for a convoy was provided. In April *Bogue* was joined by HMS *Biter* whose aircraft (Martlet fighters and Swordfish), with the aid of HMS *Pathfinder*, achieved the first CVE U-boat kill since *Audacity* when they sank U-203 on 23 April in the Greenland Gap.

March 1943

USS *BOGUE*  
Arrives

Continuous Air  
Cover for an  
Atlantic Convoy

In addition to the air protection provided the North Atlantic convoys by the CVEs, VLR Liberator aircraft under Coastal Command's control were also becoming available in larger numbers. By the end of March 1943 there were thirty of these available, an increase of thirteen over the total

More VLR  
Aircraft  
Available

\* By the end of March five surface support groups were in service on the North Atlantic convoy routes. In addition, the initial fruits of the massive U.S. destroyer escort construction program were realized during the early months of 1943 and these, in addition to more limited British construction, were instrumental in increasing the average size of a convoy's surface screen to about eight ships.

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available in February. An additional advantage was gained in March when a squadron of Liberators became operational from Newfoundland. This made it possible to conduct coordinated patrols from both sides of the Greenland Gap, thus increasing the efficiency of each aircraft.

*The Climax of the Battle of the Atlantic*

*April - May  
1943*

*High U-boat  
Losses - Convoy  
Losses Decrease*

Despite the Allies' strengthened air and surface escort, the numbers of U-boats at sea in the North Atlantic area remained high in April and May, and their concentrated attacks against the heavily escorted convoys continued. The result was the climax of the Battle of the Atlantic, characterized by ferocious convoy battles, this time with the Allies gaining undisputed superiority. In all, fifty-six U-boats were destroyed in the North Atlantic during this two month period in exchange for fifty-one Allied merchant vessels sunk in convoy.\*

The coordinated effort of VLR and carrier based aircraft with that of the surface escorts in locating, attacking, driving down, or destroying U-boats made it obvious to Doenitz that his conventional U-boats were over-matched by the superior Allied antisubmarine force. Especially devastating were the radar-equipped aircraft,\*\* which with their great range and destructive potential made all U-boat surfacing dangerous. Commenting on this, Admiral Doenitz later recorded:

*Radar-equipped  
Aircraft  
Particularly  
Effective*

Radar, and particularly radar location by aircraft, had to all practical purposes robbed the U-boats of their power to fight on the surface. Wolf-pack operations against convoys in the North Atlantic, the main theater of operations and at the same time the theater in which air cover was strongest, were no longer possible. They could only be resumed if we succeeded in radically increasing the fighting power of the U-boats.<sup>36</sup>

\* Another fifty-five merchants were destroyed while unescorted, most of these in the Freetown and Southeast Atlantic areas.

\*\* Between October 1942 and January 1943 the effectiveness of the German Metox (R-600 GSR) search receiver in countering Allied metric radar became evident by the low number of surface sightings and attacks on U-boats. The situation changed, however, in February and March 1943 when the Allies introduced the airborne version of the S-band radar (the British designation Mark III ASV and the U.S. designation AN/APS-2). The 10-cm wavelength on which these sets operated could not be detected by Metox.

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Though the low number of convoyed ships U-boats destroyed and the high losses they suffered in April and May of 1943 were important to the defeat of the U-boat campaign against trans-Atlantic shipping, an even more significant criterion for judging the effect of these two months of climactic action is contained in a quotation from the May 1943 monthly *Anti-Submarine Report*:

Historians of this war are likely to single out the months of April and May 1943 as the critical period during which strength began to ebb away from the German U-boat offensive not because of the low figure of shipping sunk . . . not because of the satisfactorily high number of U-boats sunk . . . but because, for the first time, U-boats failed to press home attacks on convoys when favourably situated to do so.<sup>37</sup>

*U-boats Lose  
Their  
Persistence*

On 24 May 1943, in order to avoid the extermination of the U-boat fleet, Doenitz withdrew from the North Atlantic. In so doing he was in effect admitting defeat, for his primary goal had always been the disruption of the Allies' Atlantic communications. In the words of Roskill:

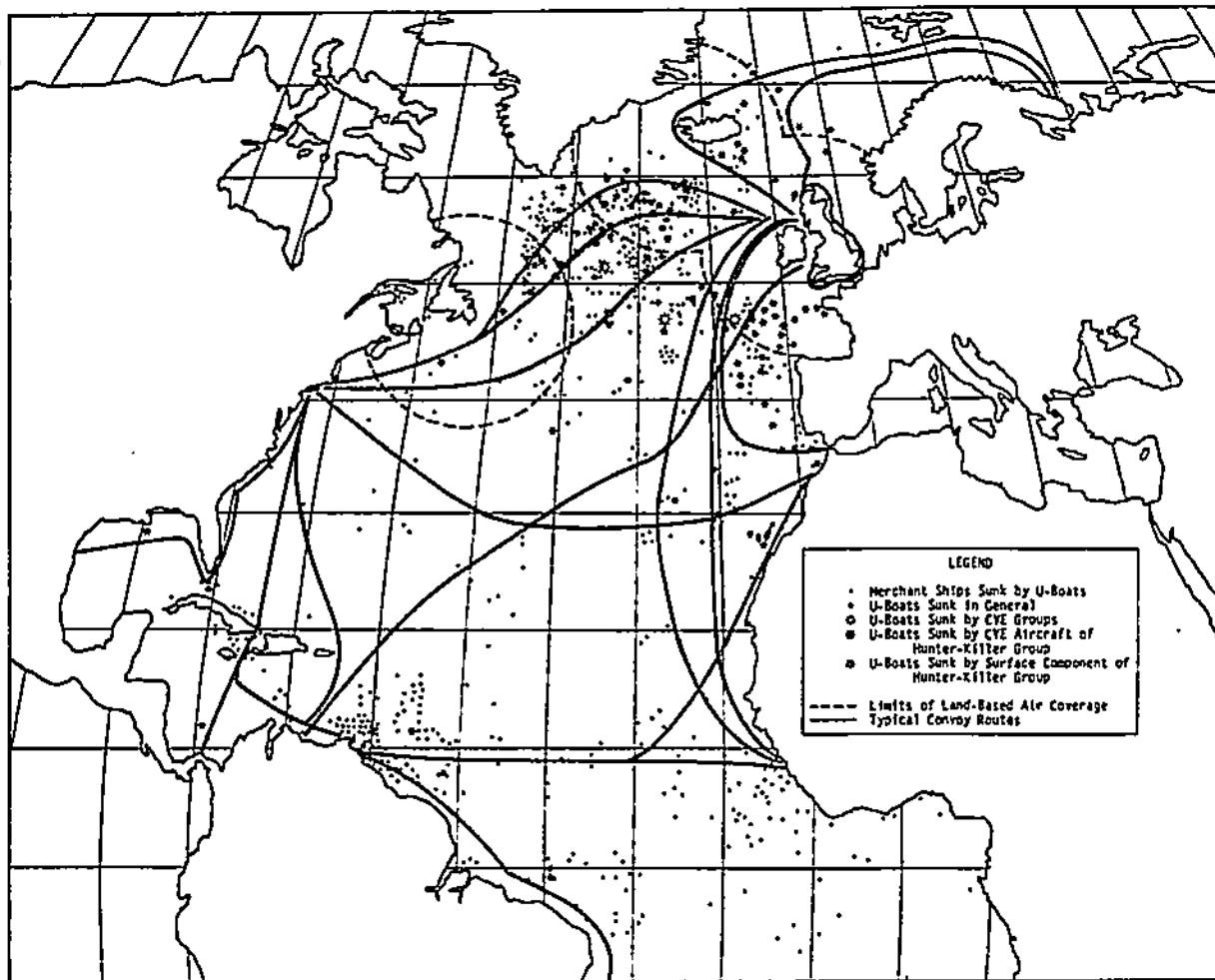
*U-boat Fleet  
Withdrawn  
from the  
North Atlantic*

The battle never again reached the same pitch of intensity, nor hung so delicately in the balance, as during the spring of 1943. It is therefore fair to claim that the victory here . . . marked one of the decisive stages of the war; for the enemy then made his greatest effort against our Atlantic life-line--and he failed. After forty-five months of unceasing battle, of a more exacting and arduous nature than posterity may easily realise, our convoy escorts and aircraft had won the triumph they had so richly merited.<sup>38</sup>

*Summary of Phase V*

When the increased numbers of U-boats renewed their offensive against the North Atlantic convoy routes in the summer of 1942, the outcome of the Battle of the Atlantic became dependent upon the Allies' being able to provide sufficient escort protection to convoys in the mid-Atlantic before the large wolf packs operating there sank enough convoyed ships to disrupt the Allied sea communications. Fortunately, the Allies were able to accomplish this

## The Atlantic U-boat War



Date	Merchant Losses				U-boats Lost
	In Convoy	Stragglers	Independent	Total	
1942 Aug	50	7	51	108	10
Sept	29	7	58	94	11
Oct	29	10	54	93	16
Nov	39	6	70	115	13
Dec	19	7	33	59	5
1943 Jan	15	8	14	37	6
Feb	34	13	16	63	19
Mar	72	13	23	108	15
Apr	25	9	22	56	15
May	26	5	19	50	41
Total	338	85	360	783	151

Phase V Situation Map and Chart.

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## *The Atlantic U-boat War*

objective in time and the decisive convoy battles of April and May 1943 ended in their favor.

Of the many factors involved in determining this result, it was the role played by the mobile support groups and land and ship-based aircraft which closed the Greenland Gap and forced the Germans to temporarily suspend U-boat operations against the trans-Atlantic convoys until their submarines could be given more offensive and defensive capability. By mid-September 1943, when this was accomplished, Allied antisubmarine forces had become so strong, and Allied merchant ship production had risen so greatly, that the German chances of severing the Allies' vital sea communications had passed. Consequently, by the end of 1943 the U-boats' value was reduced to that of pinning down as many Allied forces as possible so that they could not be used elsewhere against the hard-pressed German forces in Europe.

*U-boat  
Significance  
Greatly Reduced*

## **Phase VI: 1 June-20 September 1943**

### Distant Ocean U-boat Operations

Driven from their attack on the trans-Atlantic convoys by the increased numbers and effectiveness of the Allied antisubmarine forces, the U-boats were redeployed in June 1943 on distant ocean operations off West Africa and Brazil, and in the Caribbean Sea and Indian Ocean, where Doenitz hoped they would encounter minimal antisubmarine opposition. A few U-boats were left in the North Atlantic, and these succeeded in forcing the Allies to retain their antisubmarine strength in the area and to keep the convoy system intact. However, they sank just fifteen ships from 1 June to 18 September 1943, only seven of which were in convoy.

*June 1943*

*U-boats Seek  
the "Soft  
Spots"*

By employing the majority of his forces in distant waters, Doenitz hoped to preserve his fleet until they could renew the attack on the Atlantic convoys equipped with better anti-aircraft armament and sensors and the experimental acoustic homing torpedo. During June 1943 the majority of U-boat activity involved the redeployment of the fleet to distant waters and contact with Allied forces was minimal, as evidenced by the fact that both submarine and merchant casualties were comparatively low.\*

*Doenitz's  
Strategy*

\* In June seventeen U-boats and nineteen merchant vessels were sunk.

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In July the number of independent merchant losses per month rose from sixteen to thirty-one as the U-boats enjoyed initial successes in the "soft spots" where the volume of independent sailings was heavy and the anti-submarine defenses were weak. However, after these early successes the numbers of merchant sinkings in these areas declined, due in part to stiffening ASW defenses there, but more importantly the result of intensified Allied anti-submarine offensives conducted elsewhere.\* Particularly devastating was the success achieved by the Coastal Command in the Bay of Biscay and the U.S. Navy CVE HUK groups around the Azores.\*\*

*The Atlantic Convoy Conference and the Creation of the Tenth Fleet*

Before discussing the successful Allied campaigns against the U-boats in the Bay of Biscay and the central Atlantic, it is necessary to mention several "behind the scenes" developments that occurred during the spring of 1943 that greatly affected the U-boat war.

*The Need for  
Centralized  
ASW Control*

An integral part of the intensified Allied antisubmarine offensive after May 1943 was the newly organized U.S. Tenth Fleet, the Washington-based focal point of the U.S. Navy's ASW effort. Before the Tenth Fleet was created on 20 May 1943, the United States' antisubmarine force was widely diversified. The various elements, the Army Air Force's I Bomber Command, the Convoy and Routing Division, the Atlantic Operational Intelligence Section, the Submarine Tracking Room, the Antisubmarine Warfare Operational Research Group, and the actual operational forces, were scattered within the Sea Frontier and fleet commands, reporting to no central ASW authority, and making effective coordination and cooperation of ideas and forces difficult.

In addition to the divisions within the U.S. anti-submarine defense system, there were also problems along national lines, between the British, Canadian, and American antisubmarine forces. The Change of Operational Control (CHOP) line that divided the Atlantic into British and

\* With the increasing numbers of CVEs, DESs, and aircraft becoming available, the lack of U-boat activity on the North Atlantic convoy routes, and the availability of Special Intelligence, conditions for going to a full scale ASW offensive against the U-boats were ideal.

\*\* During the period 1 July to 20 September 1943 Coastal Command's Bay offensive accounted for nineteen U-boats while the U.S. Navy CVE groups sank another twelve U-boats in the Azores area.

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American strategic areas emphasized the divided Allied antisubmarine effort. It did not allow for the establishment of a standard antisubmarine policy, and made joint operations very confusing and difficult as the U.S. and British-Canadian forces used different signals and procedures.

By the spring of 1943 the Allies recognized the need for some sort of reorganization and standardization of the dual control antisubmarine command system. It was to address this problem of areas of operational responsibility and control, as well as other general problems concerning the allocation of forces, and antisubmarine training and tactics, that the Atlantic Convoy Conference was convened in Washington on 1 March 1943, attended by representatives from the U.S., British, and Canadian navies.

*Convoy  
Conference of  
March 1943*

The most significant result of the Atlantic Convoy conference was the agreement that delegated responsibility for the protection of the New York-Halifax-United Kingdom and United Kingdom-Gibraltar convoy routes, and most of the North Atlantic to the British and Canadians, leaving the U.S. Navy responsible for the New York-Gibraltar and Trinidad-United Kingdom oil convoys, and most of the central and south Atlantic. These particulars were exceptions to the east-west CHOP designations which were in effect from 1 July 1942 to the end of the war.

*Areas of ASW  
Responsibility  
Redesignated*

The Convoy Conference, however, established no centralized Allied ASW headquarters, but rather left each navy on its own to decide on the type of antisubmarine command it wished to employ. Subsequently, Admiral King, the U.S. Navy's Commander-in-Chief, created the TENTH Fleet, "to exercise unity of control over U.S. antisubmarine operations in that part of the Atlantic under U.S. strategic control." Though it possessed no ships and only limited personnel, the TENTH Fleet had at its disposal all the U.S. naval forces of the Atlantic Fleet and Sea Frontiers. Established on 18 May 1943, its mission was the destruction of U-boats in U.S. controlled waters. The TENTH Fleet organization was modeled after Cominch Headquarters and consisted of no new departments, but rather incorporated all the old antisubmarine offices, including the Atlantic Operational Intelligence Section, under the direction of Commander Kenneth Knowles.\*<sup>39</sup> That office

*TENTH Fleet  
Established*

\* The availability of Special Intelligence created a dilemma of how to secure the secrecy of that advantage while still making the most effective use of it. By centralizing the control of Special Intelligence, the TENTH Fleet in fact accomplished both.

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retained its place in the existing Cominch organization, under the same title, while at the same time becoming part of the TENTH fleet under the designation F21.

The TENTH Fleet was in every sense the brain center for the American antisubmarine effort after May 1943. Its personnel kept a twenty-four-hour vigil on U-boat and merchant operations, receiving, compiling, and analyzing data, conducting operational research and evaluation, organizing convoy routing, and even publishing a monthly ASW bulletin.

Though always under Admiral King's nominal control, the TENTH Fleet's de facto head was Rear Admiral Francis S. Low, whom King had appointed as the Fleet's Chief of Staff. Low maintained a close working relationship with the British throughout the remainder of the U-boat war. This proved an invaluable aid to both sides, particularly in the intelligence aspect of their antisubmarine operations.

#### American CVE Operations

*TENTH Fleet  
Immediately  
Effective*

The TENTH Fleet's efficiency became apparent almost immediately after its conception when, with the help of Special Intelligence, Bogue's aircraft sank U-569 on 22 May 1943 while supporting the eastbound North Atlantic convoy ON 184. From that date to the end of 1943 U.S. Navy CVE-based aircraft were devastating in their ASW role, destroying twenty-three U-boats alone and another with the help of surface escorts.

*U.S. Employment  
of the CVE*

The American CVEs operated in a different, more offensive capacity than their British counterparts. Not under the direct control of the convoy's escort commander, they were free to use their F4F and TBM aircraft to seek out and destroy U-boats wherever they were reported. In addition, the U-boat refueling activities in the Azores area, the dates and times of which were often known in advance through radio intelligence, offered the American CVE aircraft an excellent opportunity to surprise and attack vulnerable surfaced submarines. Indeed, it was in this area where the U.S. Navy HUK groups enjoyed the majority of their 1943 successes.

In July 1943 the first successful American Hunter-Killer operations were conducted, centered around the CVEs

*The Atlantic U-boat War*

*Bogue, Santee,\* and Core.* Based on information gained by Special Intelligence and HF/DF bearings revealing general areas of U-boat activity and, in some cases, the exact times and locations of U-boat refueling rendezvous, *Bogue, Santee, and Core* and their accompanying destroyers sank twelve U-boats in July and August, four of them scarce U-tankers.\*\*

*Intelligence  
the Key. . .*

The immediate success of the American HUK operations would not have been possible without intelligence revealing U-boat locations and intentions, and is a tribute to the work of CDR Knowles's Tenth Fleet F21 staff. However, the intelligence information alone was useless if it could not be acted upon promptly, and it is here that the mobility and range of the CVEs proved valuable, enabling a concentrated force to be quickly dispatched to the designated area. Indeed, the success of the Hunter-Killer concept in destroying U-boats was dependent upon both accurate intelligence localizing U-boat positions, and the inherent mobility of the CVE units.

*. . . but CVE  
Mobility  
Necessary*

*The Biscay Offensive*

In addition to the successes recorded by the U.S. CVE Hunter-Killer groups against the U-boats in the Azores area, the British began in June 1943 a very successful intensified offensive against the U-boats transiting the Bay of Biscay. Towards the end of May, in an effort to decrease the lengthy submerged passage time through the Bay of Biscay while still providing his U-boats adequate protection, Doenitz ordered them to proceed across the Bay on the surface in groups of three or more and to engage any enemy aircraft they encountered. This order was soon known to the British through Special Intelligence, and on 7 June a meeting was held between the Admiralty and the Air Ministry to discuss a counteraction. It was decided that, in view of the absence of attacks on the Atlantic convoys, surface and air escort and support forces could be withdrawn from there and deployed on special U-boat hunting

*June 1943*

*ASW Patrols  
Established  
in Biscay Bay*

- \* *Santee* had been employed on HUK duty at the end of December 1942 to assist in running down surface raiders and U-boats. However, she had no ASW success.
- \*\* Six of the sinkings, occurring between 12 and 16 July, were made during a period of complete absence of Special Intelligence, as the Allies were unable to break the U-boat cipher for the first three weeks of July. However, the original information establishing the general areas of U-boat operations in which these kills took place was provided by Special Intelligence that had been attained before 1 July.

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patrols in the Biscay Bay. These patrols soon proved equal to the new German tactic. Upon contacting a group of U-boats on the surface, a single aircraft would radio for support, while keeping beyond the range of the U-boats' anti-aircraft fire but staying close enough to prevent the U-boats from submerging and thus risk being bombed. When enough additional aircraft had been gathered at the scene, a concerted attack was delivered. The results were usually in the aircrafts' favor.

*Bay Offensive  
Highly  
Successful*

The intensified Bay offensive lasted until mid-September 1943, at which time the U-boats renewed their attacks on the North Atlantic convoys and the forces that participated in the Bay offensive were recalled to the North Atlantic for convoy support. The offensive was most successful between 15 May and 2 August when the U-boats attempted to fight it out on the surface. Twenty-four of them were destroyed in that period, all but three by land-based aircraft. On 2 August the heavy losses suffered in the preceding weeks forced Doenitz to cancel all future sailings until the new search receiver that detected 10-cm radar, and improved anti-aircraft firepower and armament, could be fitted into the boats. In addition, the U-boats already at sea were ordered to hug the Spanish coast when returning to base because the Allies' airborne radar would have difficulty distinguishing the small U-boats from the land mass.

*British CVE Operations*

*Differences in  
U.S. and  
British CVE  
Employment*

The differences in the manner of employment of the British and American CVEs resulted from different threats in the areas in which they operated and varying ideas on the primary roles of the escort carrier. Because the British were responsible for antisubmarine defense of much of the North Atlantic and Arctic oceans, their escort carriers operated close to the European land mass where the Germans threatened convoys with bombers, surface raiders, and U-boats. In addition, as planned at the Casablanca Conference,\* the Allies' Operation Avalanche (the offensive

\* This conference opened at Casablanca on 14 January 1943, attended by Roosevelt, Churchill, and the Combined Chiefs of Staff. It was called to discuss Allied strategy after the successful North African offensive. At Casablanca the Allies decided that the Battle of the Atlantic must be won before the European offensive could succeed. As a result plans were made to conduct an all-out bomber offensive against the U-boat building yards and ports.

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in the northern Mediterranean landing at Salerno, Italy) was to be covered by four British CVEs operating fighter aircraft in a support role. Thus, as the British CVEs were to operate in potentially hostile air, surface, and submarine environments, the Admiralty was unwilling to employ the American-built conversions until they had undergone alterations under British supervision. These modifications involved the fitting of additional radar for fighter direction, accommodations for the Army Liaison Section, and ordnance modifications enabling a full fighter complement to be carried. Furthermore, after a gasoline explosion sank the U.S.-built HMS *Dasher* on 27 March 1943, the British carried out modifications of the fuel supply and storage system of the American conversions, labeling the original system unsafe and thus responsible for *Dasher's* loss.

*British Desire  
More Anti-air  
Capability. . .*

*. . . and a  
Better Fuel  
Storage System*

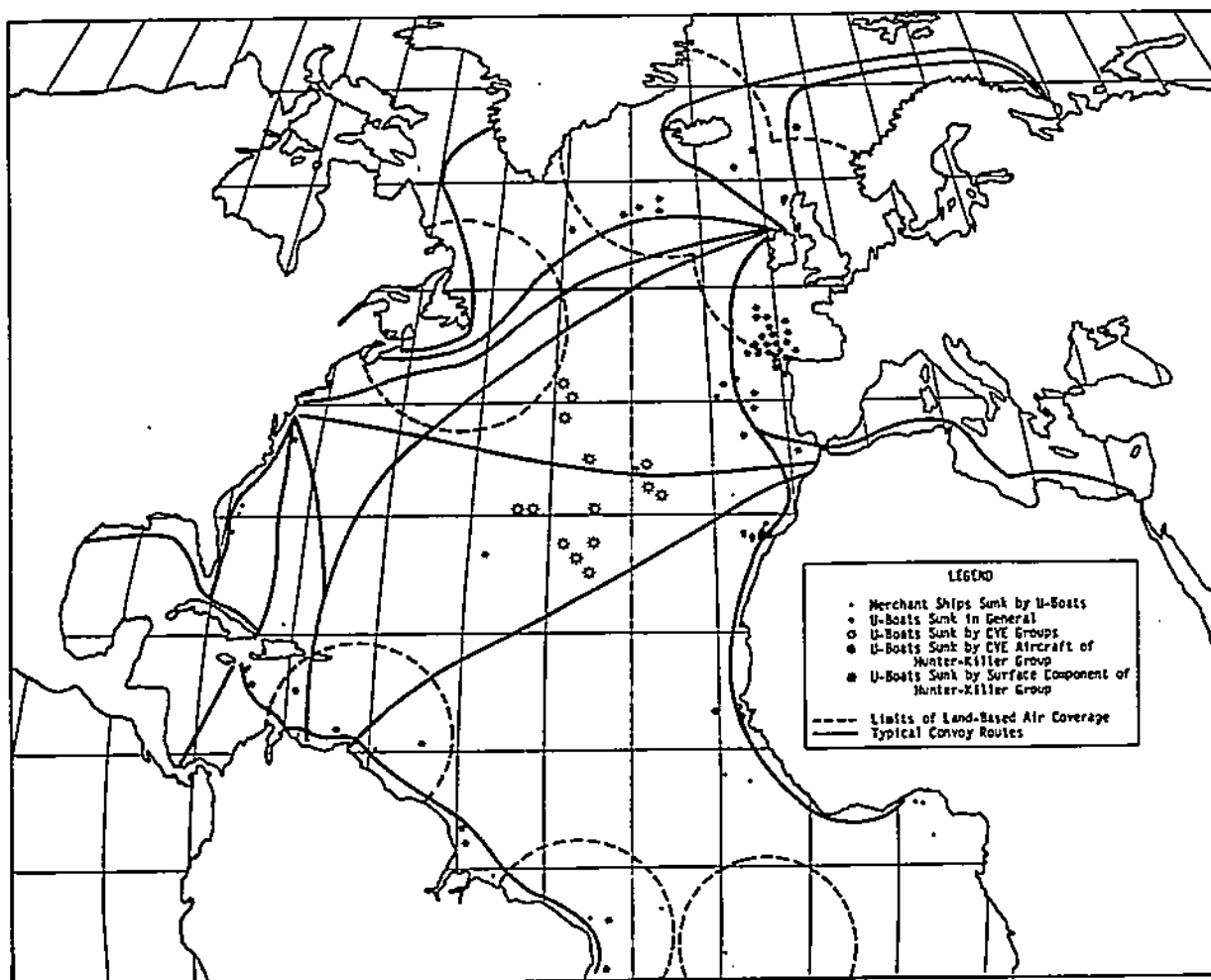
The refitting the British carried out after the American CVE conversions arrived in England usually took several months to complete. These delays aggravated several senior U.S. Navy officials, including Admiral King, who felt that the primary mission of the CVE was ASW, not anti-air. In a memorandum to Cominch dated 27 August 1943, the Allied Antisubmarine Survey Board suggested that the carriers might come into antisubmarine service sooner if they were placed under U.S. control.<sup>40</sup> The Admiralty disagreed, but the controversy evaporated before further debate because U.S. manpower shortages did not allow the U.S. Navy to operate the carriers any sooner. Though never a major issue, the affair exemplified the differences in U.S. and British policy with regard to their operation of the escort carriers.

*Controversy  
Arises Over  
British  
Refitting*

Since the main U-boat offensive after May 1943 was withdrawn from the North Atlantic convoy routes, and the few submarines still operating there were under strict orders from Doenitz to remain submerged by day, the British CVEs protecting those convoys encountered only a small number of submarines. In addition, since their primary mission was the protection of the convoy and not the destruction of U-boats, and they were virtually at the disposal of the convoy's escort commander, the British CVEs were not free to pursue to destruction the few U-boats they did engage. Finally the British CVEs until late in the war, usually did not employ the American Avenger TBM, which was a faster, more durable antisubmarine aircraft than the Fairey Swordfish. The overall result was that during the

*British  
Emphasize  
Convoy Defense*

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Date	Merchant Losses				U-boats Lost
	In Convoy	Stragglers	Independent	Total	
1943 June	3	0	16	19	17
July	13	1	31	45	37
Aug	5	1	10	16	25
Sept	3	0	7	10	4
Total	24	2	64	90	83

Phase VI Situation Map and Chart.

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whole 1943 period of antisubmarine operations, British CVE aircraft destroyed only one U-boat in the Atlantic, in addition to sharing two with surface escorts. When compared to the success of the American CVEs during the same period (twenty-four kills) these results seem meager until one considers that U-boat successes against convoys during 1943 in the areas of British Atlantic control were, after May, almost nonexistent.

Summary of Phase VI

The eighty-three U-boats Doenitz lost to all causes\* between the end of May and mid-September 1943 foiled his strategy of preserving the greatest number of submarines for the renewed offensive against the Atlantic convoys. Even more significant was the fact that fifty-four of the kills were the result of Allied offensive patrols which were not directly escorting convoys.\*\* Particularly devastating were the Allied airborne ASW operations, which netted sixty-two U-boats during this period--forty-eight by land-based aircraft and fourteen by CVE aircraft. In exchange for their losses U-boats destroyed ninety-one merchant vessels, sixty-one of them independents. This gives an exchange rate of almost one U-boat destroyed for each merchant vessel lost--a clear demonstration that Allied ASW capability had completely mastered the conventional surface-dependent U-boat.

*ASW Offensive  
Patrols  
Successful*

- \* During the period 1 June to 20 September 1943 twenty-four U-boats were sunk by convoy air and surface escorts, another twenty-three during the Biscay offensive, seventeen to other Allied air, surface, and submarine patrols, fourteen to CVE groups, one in port by bombing, and four in accidents or for unknown reasons.
- \*\* In addition to the offensives in the Biscay Bay and the central Atlantic, Allied air, surface, and submarine patrols in the Indian Ocean, Caribbean Sea and Mediterranean Sea, off West Africa and Brazil, and in the northern U-boat transit area between Iceland and the Faroes accounted for another seventeen U-boats during this period.

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**Phase VII: 20 September 1943-31 May 1944***The U-boats Attempt a Comeback Against the Atlantic Convoys*

*Convoy  
Offensive  
Renewed*

On the night of 20 September 1943, the U-boat fleet renewed its offensive against the Atlantic convoys, equipped, as Doenitz boasted, with "all the essentials for a successful campaign."\* Following the four-day attack (20-23 September) by a pack of nineteen submarines on the combined convoys ON 202 and ONS 18, the Germans were encouraged by reports from the U-boat commanders involved claiming that twelve escorts and nine merchant ships had been sunk. Doenitz believed that the principle reason for these successes was the new anti-escort acoustic torpedo, and the policy of attacking escorts first was therefore continued. It was only later that he realized that the U-boat commanders had overestimated their claims and that ON 202 and ONS 18 had in reality lost only three escorts and six merchant ships while two U-boats had been sunk and two more heavily damaged. With the Allied introduction of the FXR (Foxy) towed noise making device in mid-October the new acoustic torpedo threat was countered.\*\* In the coming weeks heavy U-boat losses coupled with their very limited successes were to prove that despite their improved hardware, the era of the conventional surface-dependent U-boat had ended.

*Gibraltar  
Convoys Offer  
U-boats Best  
Opportunity*

The renewed U-boat offensive against Atlantic convoys was not confined to the North Atlantic route. In June 1943 a change in the Allied cipher settings had temporarily left the B. Dienst blind, thus denying Doenitz his most reliable means of locating the trans-Atlantic convoys. In addition, the availability of medium range German reconnaissance planes on the Gibraltar convoy route, where Allied air opposition was not dominant, increased the U-boats' chances of successfully engaging those convoys. Thus, after June 1943 the Sierra Leone-Gibraltar to United Kingdom convoy route was the center of increased U-boat activity.\*\*\*

\* The new U-boat hardware included: improved 20-mm anti-aircraft armament, the new Zaunkoenig acoustic torpedo, the Hagenuk radar search receiver for use against short wave radar, and the radar decoy "Aphrodite."

\*\* Alerted to the German development of the acoustic torpedo by radio intelligence, the Allies had nearly completed the Foxy in advance of the torpedo's introduction.

\*\*\* At the beginning of July 1943, the Mediterranean was opened to through convoys from Gibraltar to Port Said and eastwards. The traffic on the United Kingdom to Gibraltar route was consequently greatly increased and the number of ships passing through the Mediterranean had doubled by September 1943.<sup>41</sup>

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In October 1943 a significant development that occurred was the Allied negotiation with the Portuguese government that permitted the basing of Allied aircraft on the Azores Islands by the end of the month. This allowed the North Africa-Gibraltar-United Kingdom traffic to be routed further west, under Allied air cover but out of the range of German shore-based aircraft. As a result, the increased numbers of U-boats and German land-based aircraft on the Gibraltar route were, in effect, countered by the increases in Allied air cover. In addition, the availability of aircraft from the Azores allowed the trans-Atlantic convoys to be routed on a more direct and desirable southerly course.

October 1943

*Allied  
Occupation  
of the Azores*

The renewed U-boat attacks on the North Atlantic and Gibraltar-United Kingdom convoy traffic were defeated in October as only eleven convoyed ships were sunk\* in exchange for twenty-six U-boats destroyed in all waters.\*\* By the end of October it was obvious to Doenitz that his U-boats had little chance of repeating their successes of the previous spring. In his war diary of 1 November 1943 he wrote: "We cannot stand these losses particularly with no successes to counterbalance them. . . ."48 And later, in his memoirs, Doenitz concluded, ". . . The era of success has ended. All we could now hope to do was to fight a delaying action and, with as economic a use of our forces as possible, continue to tie down the forces of the enemy."42

*U-boat  
Offensive  
Defeated*

Operationally the effect of Special Intelligence on the success of the Allied antisubmarine operations in October was again significant. The techniques of breaking the German code had advanced by the beginning of October to the point where Special Intelligence was almost completely up to date. This allowed for many of the North Atlantic convoys to be evasively routed completely clear of wolf packs, so that only a minimum of U-boat attacks were made. For the Gibraltar-United Kingdom and Arctic convoys, evasive routing was more difficult because of the limited sea room available. However, since Special Intelligence gave advance warning of most U-boat attacks, reinforcements were dispatched to the threatened convoys, allowing them to proceed through the wolf packs with only minimal losses.

*Special  
Intelligence  
Again  
Significant  
Defensively. . .*

\* In October 1943 U-boats also destroyed nine independents.

\*\* Of these twenty-six, twenty-three were destroyed in the North Atlantic, eleven by land-based aircraft and six by carrier-based aircraft--a perfect demonstration of how air power had mastered the conventional U-boat.

. . . and  
*Offensively*

The more spectacular offensive side of the advantages of Special Intelligence was demonstrated again in October by the American CVE Hunter-Killer groups. Despite the submarine losses to the American CVEs in the Azores area in July and August 1943, Doenitz was forced to continue the surfaced refueling operations there if the U-boats were to maintain distant ocean operations. This presented CDR Knowles in TENTH Fleet Intelligence with another excellent opportunity to use the available radio intelligence on refueling times and locations as a basis for HUK operations. Again these were devastating as aircraft from *Card*, *Core*, and *Block Island* sank six U-boats in October, two of them U-tankers. Thus, by the end of October, fourteen of the sixteen U-tankers that had been constructed had been sunk.\* 43

*U-Tanker Fleet  
Decimated*

*The U-boats Are Withdrawn to the Eastern Atlantic*

*November 1943  
U-boats Revert  
to Maximum  
Submergence*

The U-boat losses suffered at the hands of Allied aircraft in October 1943, combined with their lack of success, again forced Doenitz to change tactics, this time to maximize submergence by day and surfacing at night to follow any convoy within range. The resulting loss in U-boat mobility coupled with the Allied advantages in radio intelligence made convoys very difficult to find in November and forced the U-boats to seek targets in more restricted areas, where they could be aided by their own land-based aircraft. Thus after November Doenitz virtually abandoned operations in the Western Atlantic, dispensing the U-boats in small groups along the eastern Atlantic convoy routes where they remained submerged by day, and surfaced at night to close on those convoys located by air reconnaissance sweeps. The heaviest action occurred on the north-south track between Gibraltar and England where the U-boats received the most help from German land-based HE177, JU290, and FW200 aircraft.

*Western  
Atlantic  
Abandoned*

*U-boats  
Overmatched  
Again*

Operating in this fashion, U-boats found an abundance of targets but were still not effective because Allied air and surface convoy protection was so strong and Special Intelligence often gave such early warning of attack that they were nearly always outnumbered and overpowered. Commenting on the lack of success in these operations, Doenitz signalled the following message to his U-boats on 28 December 1943:

\* This figure includes the Type IXB mine-laying U-boats which had been converted to U-tankers.

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In the most recent convoy operations it has happened again and again that the convoy swept past the U-boats, who were unable to exploit the unique opportunity to attack, and found themselves lagging hopelessly astern of the target.

Moreover, numerous recent unsuccessful submerged attacks have shown that often the U-boats can no longer penetrate the screen without being located while at periscope depth by enemy ASDICs or hydrophones.<sup>44</sup>

*The U-boat War, January-June 1944*

By January 1944 at least one escort carrier or MAC ship accompanied each trans-Atlantic convoy. In addition, other CVEs and surface escorts, usually accompanied by an escort oiler, formed durable support groups which operated either independently in Hunter-Killer groups or in support of threatened convoys. As the number of escort carriers and support groups continued to rise throughout the early months of 1944, convoyed shipping in the Atlantic became almost immune from U-boat attack. By February Atlantic U-boat radio traffic was being decrypted daily allowing U-boat positions to be plotted by the Allies almost as quickly as they were by the U-boat Command. The additional advantage accurate radio intelligence gave the already superior Allied naval and air forces hastened the victory over the conventional U-boat. By December 1943 the Atlantic situation was clearly hopeless for the German submarine fleet whose officers and men courageously continued their operations to force Allied shipping to remain in convoy and to tie down as many antisubmarine forces as possible.

*Atlantic  
Convoys  
Immune from  
Attack*

From January to June 1944 the slaughter continued as 103 U-boats were destroyed in all waters in exchange for 67 merchant vessels lost, only 24 of which were sunk in convoy. The majority of U-boat successes during this period were achieved against unescorted shipping in distant ocean operations. Twenty-nine merchant vessels were lost in the Indian Ocean alone between 1 January and 31 March. However, the March 1944 sinking of two German surface tankers that had been replenishing the Indian Ocean U-boats seriously affected operations there as evidenced by the fact that no more ships were lost to U-boats in the Indian Ocean until June 1944.

*U-boat Losses  
Exceed Merchant  
Losses*

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The Introduction of Snorkel-Fitted U-boats*Snorkel Alters  
the U-boat War*

In February the first operational snorkel-fitted U-boat (U-264) appeared and was promptly sunk on the nineteenth by the famous Second Escort Group\* supporting convoy ON 224. Despite this initial loss the advent of snorkel-fitted U-boats in increasing numbers during the spring of 1944 gradually altered the character of the U-boat war. A snorkel protruding from the sea was a very poor target for both visual and radar sweeps and made location by Allied forces difficult. This was especially true of airborne ASW forces which had hitherto relied on radar and visual sightings for the majority of their U-boat contacts. The result was that against snorkel-fitted U-boats, airborne ASW was neutralized to a considerable extent, and an increased emphasis was placed on the continued development of the newest airborne ASW hardware (sonobuoys, MAD, retrobombs, homing torpedoes, etc.), which was designed to provide aircraft with more capability against a largely submerged threat. By the end of May 1944, Doenitz had decided that Allied air power made operations without snorkel impossible, and wholesale conversion of the entire fleet was begun. The process was, however, interrupted by the Allied invasion of Normandy in early June 1944.

During March, April, and May 1944, the majority of the U-boats continued to be disposed as they had been since the previous November, in small groups along those portions of the Allied convoy routes that came within the limits of their own land-based aircraft. Again, these submarines achieved little,\*\* largely, as has been seen, because Allied escort and support forces, usually alerted in advance by radio intelligence, did not allow the U-boats to reach a favorable attacking position.

The distant ocean operations off Trinidad and Freetown and in the Indian Ocean were also maintained, though

\* The Second Escort Group was commanded by Captain P. J. Walker, C.B., D.S.O., the war's most successful U-boat killer. Before a sudden illness took his life on 9 July 1944, his forces had accounted for twenty U-boats, fifteen of which were sunk while supporting or escorting convoys. Walker developed the "creeping attack" technique whereby one ship of the support group maintained contact with the submerged U-boat while others in the group formed a square attacking patrol. Contact with the submerged U-boat was then maintained until it was either destroyed or forced to the surface.

\*\* During March, April, and May 1944, U-boats destroyed a total of thirty-six merchant vessels, only fifteen of which were in convoy.

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by the end of March the losses among the refueling U-boat fleet forced a gradual reduction in such operations. In April the number of U-boats in the Atlantic dropped as Doenitz began to conserve his fleet, fitting many of them with snorkel, for the expected Allied invasion.

*U-boats Prepare  
for the Allied  
Invasion*

Summary of Phase VII

After the defeat of the U-boats' attempted comeback against convoyed shipping in October 1943, the significance of the German submarine offensive to the overall war picture decreased greatly. From November 1943 through the end of May 1944, the U-boats were important only in keeping Allied shipping in convoy and in tying down the increased numbers of Allied ASW forces. As Doenitz wrote in his Command War Diary of 1 June 1944:

*Doenitz Fights  
a Losing Battle*

Our efforts to tie down enemy forces, as is proved by U-boat observation, by agents' reports, and the summaries issued by naval intelligence, have so far been successful. The numbers of enemy aircraft and escort vessels, U-boat killer groups and aircraft carriers allotted to anti-U-boat forces, far from decreasing has increased.

For the submariners themselves the task of carrying on the fight solely for the purpose of tying down enemy forces is a particularly hard one.

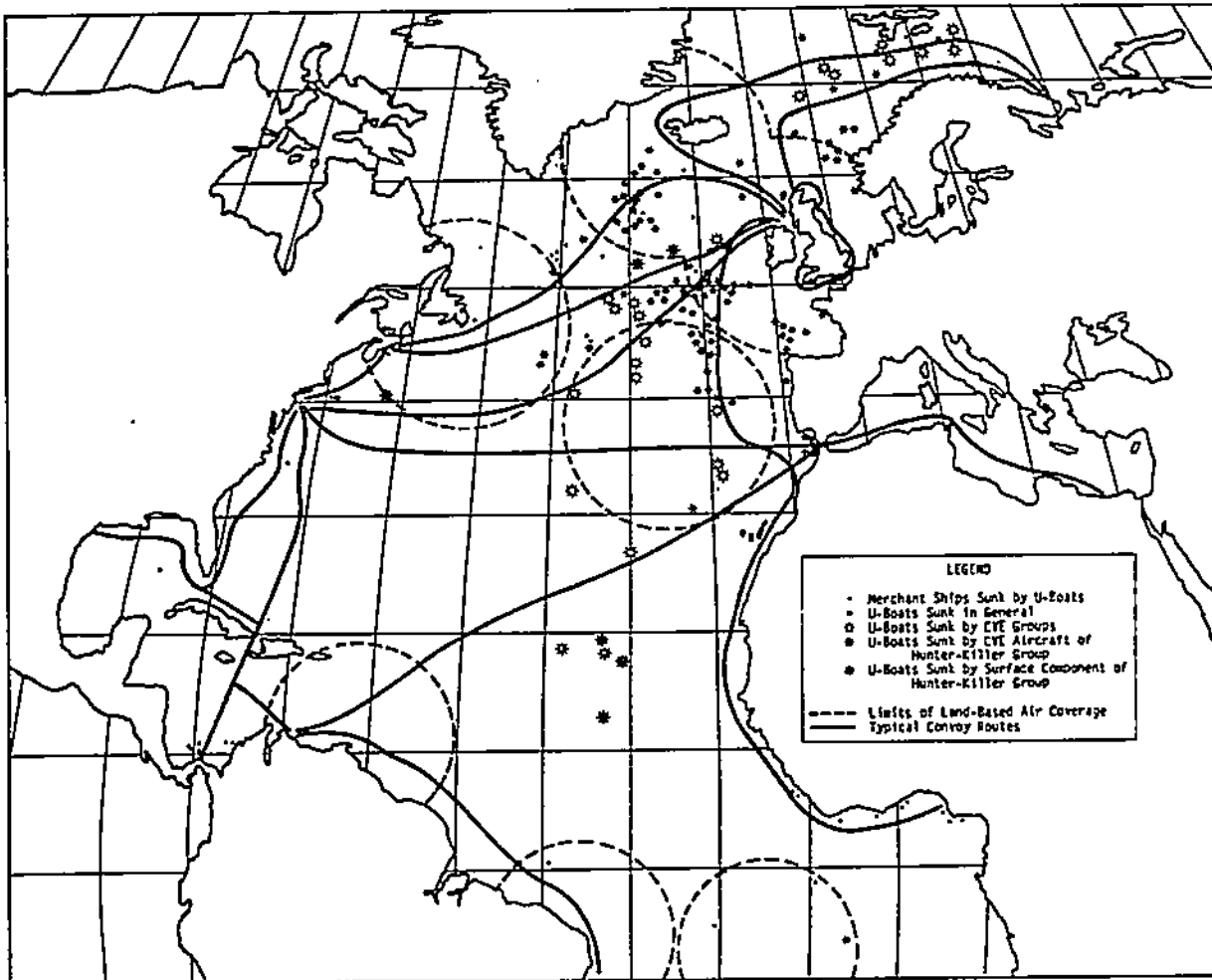
. . . Now the chances of success have become meager and the chances of not returning from operations have on the other hand greatly increased; during the last few months only 70 percent of our boats on operations have come back safely to base each month.

*U-boat Chances  
Decreasing*

Again and again we debated most earnestly whether a continuation of the U-boat campaign was justified in the face of these heavy losses, or whether recourse would have to be made to some other means. But in view of the vast enemy forces which our U-boats were tying down, we came again and again to the same inevitable conclusion:

The U-boat campaign must be continued with the forces available. Losses, which bear

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Date	Merchant Losses				U-boats Lost
	In Convoy	Stragglers	Independent	Total	
1943 Sept	8	0	2	10	5
Oct	11	0	9	20	26
Nov	3	0	11	14	19
Dec	4	0	9	13	8
1944 Jan	3	2	8	13	15
Feb	6	1	11	18	20
Mar	8	0	15	23	25
Apr	6	1	2	9	21
May	1	0	3	4	22
Total	50	4	70	124	161

Phase VII Situation Map and Chart.

*The Atlantic U-boat War*

no relation to the success achieved, must be accepted, bitter though they are.

We possessed no other means with which to tie down so vast an array of forces--only the U-boat.<sup>45</sup>

In this strategy Doenitz was successful as the Allies were devoting more effort to ASW during this period than at any previous time. Every U-boat that put to sea was hounded on its Biscay or North Atlantic passage to and from port. If it did reach its operational area, it was constantly in danger of being attacked by the roving intelligence cued HUK groups, or if contact with a convoy was achieved, of being hunted persistently by large numbers of surface and air escorts. The statistics for this period evidence this fact; from 1 November 1943 to 31 May 1944 130 U-boats were lost to all causes in exchange for 94 merchant ships being sunk, only 31 of which were in convoy.

*Allied ASW  
Effort Bigger  
than Ever*

**Phase VIII: 1 June 1944-8 May 1945***The U-boats Oppose the Normandy Invasion*

With the threat of invasion imminent by the end of May, Doenitz was faced with the problem of how best to employ his U-boats against the forthcoming onslaught. It was clear that they could do the most damage in the shallow waters of the English Channel where the invasion traffic would be concentrated. However, escort forces, both air and surface, would also be plentiful here, as were anti-submarine mines. Though the snorkel made shallow water operations possible again (they had been abandoned since 1941 because of the hazards), the situation was difficult, because the U-boats would be forced to operate submerged throughout each cruise, thereby placing considerable strain on the crews and, perhaps most importantly, from the U-boat Command's view, eliminating all radio communications. Thus weeks would pass before any results were known, making an early evaluation of tactics or coordination of forces impossible. Still, the success or failure of the Allied invasion was the key to the future of the whole war and despite the hazards involved Doenitz again decided that his U-boats possessed too much destructive potential to be withheld from the battle.

*Snorkel Reduces  
Wireless  
Communication*

*Special  
Intelligence  
Alerts the  
Allies*

Special Intelligence gave the Allies precise information on the disposition of the German submarine anti-invasion forces some two weeks before the date of the invasion. Thus plans were drawn up for intensive antisubmarine patrols by air and surface forces in the southwestern approaches to the English Channel and over the whole area from southern Ireland to Brest.

*Fighting Fierce  
but the Effect  
is Minimal*

As soon as the Germans recognized the Normandy landings were underway Doenitz instructed the Biscay U-boats to proceed to their previously assigned areas with orders to attack any vessel taking part in the landings no matter what the risk. Consequently, during June, July, and August the fighting was fierce with forty-one Allied ships being lost in exchange for seventy-four U-boats. Thus the U-boat fleet once again paid dearly to achieve only minimal success against Allied shipping. Beginning in July the Germans employed human torpedoes, explosive motor boats, and the new V-1 rockets in an anti-invasion role. These too had little overall effect but demonstrated the fury of the German resistance.

*The U-boats Are Driven from the Biscay Bases*

*U-boats Flee to  
Norwegian Ports*

By August the Allied land advances in Europe threatened the Biscay ports, and the U-boats began, in the middle of the month, an exodus to Norwegian ports. The Allies seized this opportunity and established intense anti-submarine patrols in the Bay of Biscay and the English Channel which destroyed fifteen U-boats before the month ended.

*Convoy Activity  
Rare*

Doenitz's concern with the anti-invasion operations caused a further reduction of U-boat activity on the convoy routes after June 1944. Thus U-boat successes and losses in the North Atlantic virtually ceased, except for those submarines destroyed by the U.S. Navy CVE Hunter-Killer groups. After August even these were rare, totalling only four from September 1944 to the end of the war.

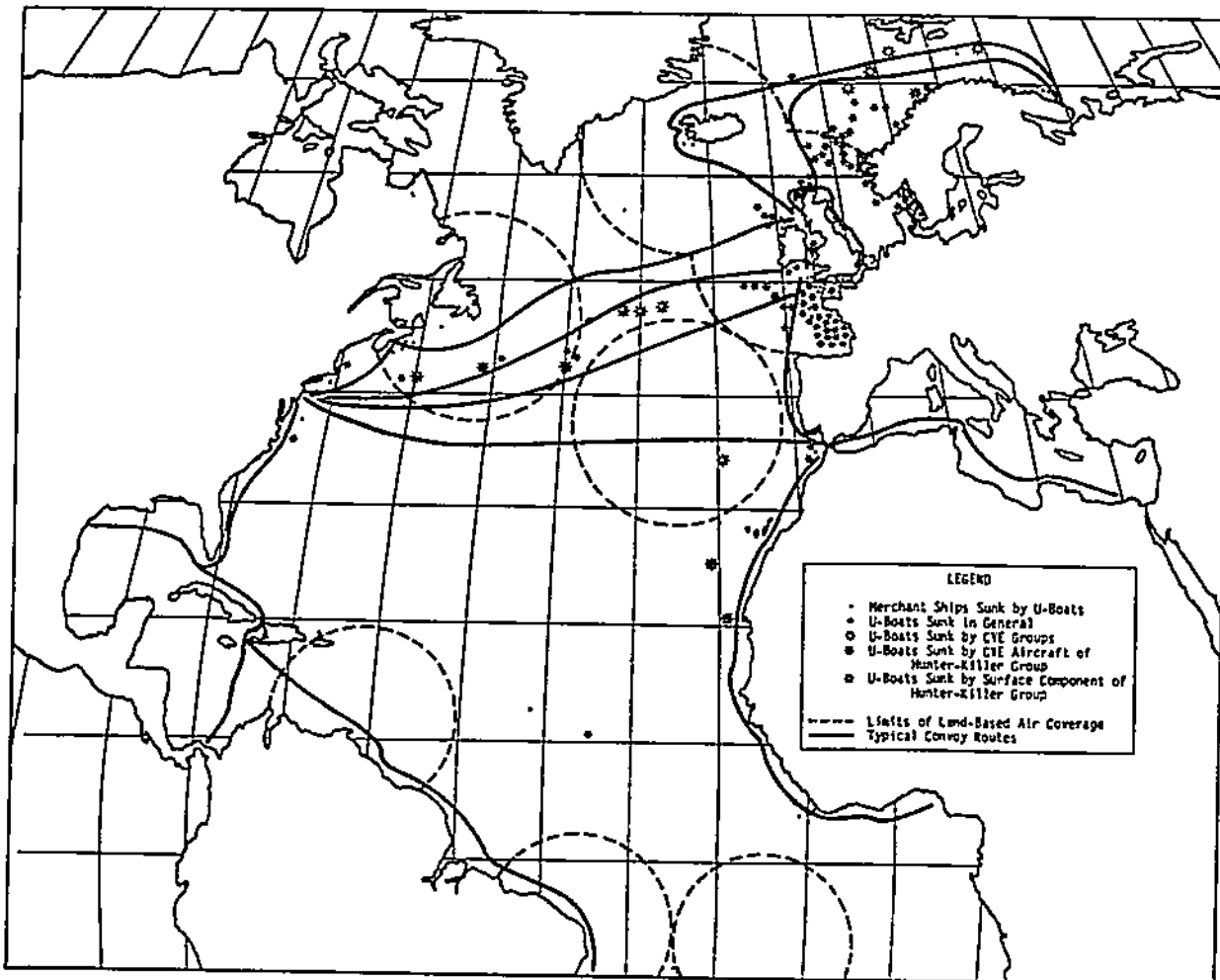
September and October 1944\* were transition months for the remnants of the German submarine fleet as they attempted passage to Norway under intense Allied anti-submarine patrols. Snorkel enabled most of them to successfully evade the patrols, but the time-consuming

\* October 1944 was the first month of the war that the U-boats failed to sink a single ship in the Atlantic.

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Date	Merchant Losses				U-boats Lost
	In Convoy	Stragglers	Independent	Total	
1944 June	7	0	4	11	25
July	2	0	10	12	23
Aug	7	1	10	18	34
Sept	5	0	3	8	22
Oct	0	0	0	0	12
Nov	2	2	3	7	8
Dec	6	0	3	9	12
1945 Jan	7	0	4	11	12
Feb	11	1	3	15	22
Mar	9	1	2	12	34
Apr	6	0	7	13	57
May	2	0	1	3	28
Total	64	5	50	119	289

Phase VIII Situation Map and Chart.

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process allowed for little offensive activity until they became settled in their new bases in November.

*Snorkel U-boats Operate in Shallow Waters**U-boat  
Offensive  
in Shallow  
Waters*

After November 1944 U-boat activity showed an increase as the transition to the Norway bases was completed and new operations, mostly by snorkel-fitted U-boats in British home waters, in the shallow waters off Halifax, and off Gibraltar were begun. However, the overall effect of the U-boats remained small as they sank only 63 Allied ships from December 1944 to the end of hostilities. In exchange for these successes another 165 U-boats were destroyed.\*

The U-boat war after August 1944 was an entirely different affair from that experienced during the preceding four years, the U-boat fleet being completely overmatched by superior Allied ASW capability. In this final period the convoy routes--throughout the war the most important object of the U-boat offensive--were virtually immune from attack. By 1945 the importance of the U-boat campaign was minimal, being greatly overshadowed by the Allied land advances towards Berlin. Doenitz remained hopeful until the end that the revolutionary new Type XXI, XXIII, and XXVI U-boat designs, combining submerged endurance with high underwater speed, would become operational in the numbers necessary to affect the war's outcome. However, "the new phase" of the U-boat war these new types would bring never materialized; Germany surrendered with only two of the Type XXIs in service.

**Summary**

Antisubmarine warfare in the British, U.S., and Canadian navies came into prominence in World War II, evolving during the course of that conflict from World War I capability to eventual mastery of the conventional surface-dependent U-boat. Ultimately, this was accomplished by a combination of superior numbers and equipment, effective organization of all available resources, and, perhaps above all, through the endurance, training, and skill displayed by the Allies' merchant and military navies. But, ironically, the total defeat of the German

\* About 30 percent of these were destroyed in port by Allied bombing raids.

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state occurred at a time when German submarine technology had produced a new, greatly improved threat which left much of what had been learned about ASW in World War II in danger of being forgotten. Admittedly, with the postwar advent of more capable diesel-electric submarines, hydrogen peroxide propulsion, and, more recently, nuclear technology, the hardware and tactics that won the last submarine war are questionable at best. But, if modern under-sea technology has reduced the significance of a technical evaluation of the last Atlantic submarine war, the lack of another, more recent full scale test of U.S. ASW capability only enhances the need for an evaluation of certain strategic aspects of it.

The true significance of the U-boat war in World War II to present and future antisubmarine warfare lies in the answer to the following question: why did the U-boat fleet fail in its attempt to sever the Allies' sea lines of communication? This is the question a future submarine fleet commander, potentially an adversary, would consider and learn from, attempting to avoid those pitfalls which doomed the U-boat fleet.

Operationally, the Allied ASW forces that were available from the spring of 1943 to the end of war eventually defeated the German submarine campaign in World War II by exploiting the conventional U-boats' dependence on the surface for mobility and communication. Strategically, however, these forces might never have gotten their chance had Doenitz been able to impress upon Hitler at an earlier date the importance of the Atlantic submarine offensive to the eventual outcome of the war:

After three and a half years of war we had brought British maritime power to the brink of defeat in the Battle of the Atlantic--and that with only half the number of U-boats which we had always demanded. . . .

How different the course of the submarine war and, indeed, of the war as a whole, might have been if, after the abrogation of the Naval Agreement in the spring of 1939, or even on the declaration of war, the Government had given us the material and the labour we required to concentrate on the rapid building of a large number of submarines and we had been able to throw them into the fight before it was too late!

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In reality our leaders had learnt nothing from the First World War. Once again we had plunged into a world conflict with an inadequate number of submarines and, in spite of the lessons of the first war, had failed even in war time to do our utmost to expand the U-boat arm, because our political leaders and their Army and Air Force advisers believed, at least until 1942, that they could win on land a war in which our main opponents were the two greatest sea powers in the world.

. . . The German authorities had failed to throw into the Battle of the Atlantic all the forces at their command immediately after the war began and they failed to provide in good time the means we required with which to fight the battle, namely, an adequate number of U-boats.<sup>46</sup>

As it was, despite the critical periods during the late summer and fall of 1940, the first six months of 1942, and the spring of 1943, the Allies were able to sustain their merchant casualties through the first three and a half years of war, and in June 1943 new merchant construction at last exceeded merchant losses. By that time Allied antisubmarine efficiency had surpassed the operational capacity of the conventional U-boat to destroy sufficient amounts of convoyed shipping, and the Allied victory in the Battle of the Atlantic became only a question of time. In a future full scale submarine war, antisubmarine forces would probably not be given the time to come up to speed as they were in World War II, but would be severely tested by a large, modern submarine fleet, potentially supported by powerful air and surface forces, from the first day of war.

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## REFERENCES

1. Marine Rundschau, Vol. 2, 1964, "The Battle of the Atlantic in German Strategy of the Second World War," Karl Doenitz (translated from German).
2. A Contribution to the German History of the U-boat War, 1939-1945, Part I, Operations, Volume I, 1939-1941, Naval Staff, Admiralty, 1954, p. 3.
3. War Diary of S.O. U-boats, 3-13 September 1939, from A Contribution to the German History of the U-boat War, Part I, Operations, Vol. I, 1939-1941, pp. 6-8.
4. War Diary of Karl Doenitz, 21 August 1939, from The Defeat of the Enemy Attack on Shipping, 1939-1945 (C.B. 3304 (1A)), Historical Section, Admiralty, 1954, p. 54.
5. The Defeat of the Enemy Attack on Shipping, 1939-1945 (C.B. 3304 (1A)), p. 63.
6. Marine Rundschau, Volume 2, 1964, "The Battle of the Atlantic in German Strategy of the 2nd World War," Karl Doenitz (translated from the German).
7. The Defeat of the Enemy Attack on Shipping, 1939-1945 (C.B. 3304 (1A)), p. 59.
8. S.W. Roskill, DSC, RN, The War at Sea, Vol. I, His Majesty's Stationery Office, London, 1954, p. 253.
9. "A Contribution to the German History of the U-boat War," Part I, Operations, Vol. I, 1939-1941, p. 171.
10. "A Contribution to the German History of the U-boat War," Part I, Operations, Vol. I, 1939-1941, p. 172.

UNCL

11. The Development of British Naval Aviation, Vol. I (C.B. 3307(1)), Historical Section, Admiralty, 1954, p. 152, Confidential.
12. The Development of British Naval Aviation, Vol. I (C.B. 3307(1)), p. 152.
13. The Development of British Naval Aviation, Vol. I (C.B. 3307(1)), p. 196-197.
14. The Development of British Naval Aviation, Vol. II (C.B. 3307(2)), Historical Section, Admiralty, 1956, p. 286.
15. Patrick Beesly, Very Special Intelligence, Hamish Hamilton, Ltd., London, 1977, p. 94.
16. Karl Doenitz, Memoirs: Ten Years and Twenty Days, Weidenfeld and Nicholson, Ltd., New York, 1959, p. 180.
17. Patrick Beesly, Very Special Intelligence, p. 101.
18. A Contribution to the German History of the U-boat War, 1939-1945, Part I, Vol. I, 1939-1941, p. 202.
19. Marine Rundschau, Vol. 2, 1964, "The Battle of the Atlantic in German Strategy of the 2nd World War," Karl Doenitz (translated from the German).
20. Kenneth Poolman, Escort Carrier, 1941-45, Ian Allen, Ltd., London, 1972, p. 13.
21. Kenneth Poolman, Escort Carrier, 1941-45, p. 28.
22. Karl Doenitz, Memoirs: Ten Years and Twenty Days, pp. 195-96.
23. Karl Doenitz, Memoirs: Ten Years and Twenty Days, p. 198.
24. Karl Doentiz, Memoirs: Ten Years and Twenty Days, p. 202.
25. The Anti-Submarine Command, USAF Historical Study No. 107, Assistant Chief of Air Staff, Intelligence, Historical Division, 1945, p. 3.

UNCLASSIFIED

S-B/A  
ASW

*The Atlantic U-boat War*

26. The Anti-Submarine Command, USAF Historical Study No. 107, p. 4.
27. Marine Rundschau, Vol. 2, 1964, "The Battle of the Atlantic in German Strategy of the Second World War," Karl Doenitz (Translated from German).
28. The Development of British Naval Aviation, Vol. II (C.B. 3307 (2)), p. 103.
29. The Development of British Naval Aviation, Vol. II (C.B. 3307 (2)), pp. 62-63.
30. Alfred Price, Aircraft versus Submarine, Naval Institute Press, 1975, pp. 92, 93.
31. Karl Doenitz, Memoirs: Ten Years and Twenty Days, pp. 234, 237, 240-242.
32. Winston Churchill, The Second World War, Vol. IV, "The Hinge of Fate," Houghton Mifflin Co., Boston, 1950, p. 127.
33. Karl Doenitz, Memoirs: Ten Years and Twenty Days, pp. 316-317.
34. The U-boat War in the Atlantic, Vol. II (C.B. 4523(2)), Naval Staff, Admiralty, 1952, p. 88.
35. S.W. Roskill, DSR, RN, The War at Sea, Vol. II, pp. 367-368.
36. Karl Doenitz, Memoirs: Ten Years and Twenty Days, p. 341.
37. The Defeat of the Enemy Attack on Shipping (C.B. 3304(1A)), p. 92.
38. S.W. Roskill, DSC, RN, The War at Sea, Vol. II, p. 377.
39. Administrative History of the U.S. Navy in World War II; Historical Section, Cominch, U.S. Fleet Headquarters, Chapter VII, pp. 166-169.
40. The Development of British Naval Aviation, Vol. II (C.B. 3307 (2)), p. 324.

UNCLASSIFIED

41. The Development of British Naval Aviation, Vol. II, (C.B. 3397(2)), p. 137.

42. Karl Doenitz, Memoirs: Ten Years and Twenty Days, p. 420.

43. Allied Communications Intelligence in the Battle of the Atlantic: Report of Op-20G, May 1945, pp. 113-130.

44. The Defeat of the Enemy Attack on Shipping, Vol. I (C.B. 3304 (1A)), p. 119.

45. Karl Doenitz, Memoirs: Ten Years and Twenty Days, p. 420.

46. Karl Doenitz, Memoirs: Ten Years and Twenty Days, pp. 333-343.

47. Karl Doenitz, Memoirs: Ten Years and Twenty Days, p. 43.

48. The Defeat of the Enemy Attack on Shipping, Vol. I, (C.B. 3304 (1A)), p. 118.

## Acronyms - Glossary

ABM	Anti-Ballistic Missile
ASDIC	British Sonar
ASV	Air to Surface Vessel
BRT	British Registered Tons
CHOP	Change of Operational Control Line
CAM	Catapult Aircraft Merchants
C.O.	Commanding Officer
C.R.	Congressional Record
CVE	Escort Aircraft Carrier
FBM	Fleet Ballistic Missile
F.O.	Flag Officer
FW	Focke-Wulf
GNP	Gross National Product
HACH	House Appropriations Committee Hearing
HACR	House Appropriations Committee Report
HASCH	House Armed Services Committee Hearing
HE	Heinkel
HF/DF	High Frequency Direction Finder
HUK	Hunter-Killer
ICBM	Inter-Continental Ballistic Missile
JCS	Joint Chiefs of Staff
MAC	Merchant Aircraft Carriers
MAD	Magnetic Airborne Detector (WW II)
MAD	Magnetic Anomaly Detector (post-World War II)
NSC	National Security Council
OIC	Operational Intelligence Center
P.L.	Public Law
RAF	Royal Air Force
RDF	Radio Direction Finding
R.N.	Royal Navy
SACH	Senate Appropriations Committee Hearing
SASCH	Senate Armed Services Committee Hearing
SEATO	Southeast Asian Treaty Organization
TBM	Grumman Avenger Torpedo Bomber
TSR	Torpedo Carrying Aircraft Requirement
VLR	Very Long Range (Aircraft)
W/T	Wireless Transmission